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Vol. XII. No. 137. Old Series. MAY, 1879. Vol. VIII. No. 5. New Series.

THE CINCINNATI MEDICAL NEWS.

FEB 20 1934

EDITED BY

J. A. THACKER, M. A., M. D.

STORAGE

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CINCINNATI, OHIO:
Published by Dr. J. A. Thacker.

Elm Street Printing Co., 176 and 178 Elm St.

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THE
CINCINNATI MEDICAL NEWS.

VOL. XII. No. 137. Old Series. MAY, 1879. VOL. VIII. No. 5. New Series.

ORIGINAL CONTRIBUTIONS.

Report on the Use of the Obstetric Forceps.

BY I. R. LANE, M. D.

Read before the Macoupin County (Ill.) Medical Society, at Chesterfield, April 15.

IN compliance with the duties imposed, I will endeavor to offer a report on the use of the obstetrical forceps. In the last three decades, medicine as a whole has passed through many important changes. The obstetric art has not failed to keep pace with other sections of this department of science. I have avoided any attempt at entering into an elaborate description of the various modifications of the instrument. The forceps is of two kinds, the long and short. The first used in modern times was, doubtless, the one constructed by the Chamberlanes, which represented the short type, and was supplied with the cephalic curve only. At a later date, as is known to you all, the pelvic curve was invented, which greatly extends the limits of forceps delivery. The real difference between the long and short is in the construction of the shank. The blades, as a general rule, are about the same length—six inches or a little over. The shank, which converts the short instrument into the long, is two and a half to three inches in length; the handle six to seven inches. Both long and short may be provided with a double curve. It is useless to more than mention that the long forceps, which is supplied with the pelvic curve, is the only one applicable in high adjustments. The instrument has three modes of actions—leverage, compression, and traction. It undoubtedly has its greatest range of usefulness as a tractor; however, some able obstetricians, at the present time, prefer a forceps, constructed with a view to compression. It is this that makes the cardinal difference between the patterns of Hodge, Davis, and Wallace, and an instrument planned by those who oppose the idea of compression. A forceps, designed to reduce the cranial diameters to the greatest extent, is two and one-fourth to two and one-half inches at the widest part between the blades when locked, and a half an inch between the points. One used mainly as a tractor is three and a quarter to three and one-half inches at the widest space between the blades when closed, and one and one eighth between the tips. Suffice it to say, the obstetric forceps should be of the very best material and of sufficient strength to tolerate all the force required in any given case, at the same time should be as light as is consistent with the capacity of endurance. The edges should be neatly beveled, and the whole instrument highly polished. It is more especially in operative midwifery that the views and teachings in the last few years have undergone the most decided innovations. The use of the forceps is now much extended, and is resorted to with a frequency which would have met with the most bitter opposition by the older physicians. Of all obstetric instruments, the forceps is the most important, as it is the most conservative. It is almost always used with a view of saving the life of the child and relieving the mother of her suffering, and when judiciously applied by the cautious and skilled hand, violence of any gravity is seldom ever sustained by mother or child. That great harm may, and often does follow its use in the hands of uneducated and ignorant persons, none of you will doubt. Such occurrences, however, should be no plea in favor of limiting the use of the instrument, but a greater necessity for the practitioner to be more thorough in the knowledge of the anatomy of the pelvis and pelvic organs. The mechanism of labor, physiologically and pathologically, and the indispensable mechanical skill, is required to be a successful operator. The causes that may immediately demand the interposition of the accoucher are numerous, varied, and by no means always have the same mode of action. Those that may here be mentioned, are want of power in the forces necessary for the expulsion of the fœtus; disproportion between the dimensions of the pelvic canal and those of the body to be extruded. Complications are liable to arise in the most favorable cases, which endanger the life of the mother or child, such as accidental hemorrhage, convulsions, exhaustion, prolapsus of the cord, thrombus. Among the difficulties connected with obstetric practice, there are none of more frequent occurrence, and none demanding more accurate knowledge of the whole phenomena of labor, than those dependent upon deficient or irregular action of the expulsive power. Labor may be impeded or entirely arrested by other causes aside from those mentioned, as tumors, adventitious growths of various kinds, pelvic deformities, abnormal developments of the uterus, monstrosities, multiple pregancy, and placenta prævia. The latter, however, would possibly be most successfully treated in the majority of cases by version. As to when, and under what circumstances the physician should give instrumental aid, there are no definite rules to govern his action. The best is his good sense, based upon a proper knowledge of obstetrics and the mechanical application of instruments. The established custom in the Rotunda Hospital, and similar views have been adopted by the abler obstetricians of this country, is, that so long as nature is able to effect its purpose without prejudice to the constitution of the patient, danger to the soft parts, or the life of the child, we are in duty bound to allow the labor to proceed; but as soon as we find the natural efforts are beginning to fail, and after having tried the milder means for relaxing the parts, or stimulating the uterus to increased action, and the desired effects not being produced, we consider we are in duty bound to resort to still prompter means, and by our timely assistance relieve the sufferer from her distress and her offspring from an imminent death. The above is the language of Dr. Johnston.

It appears to be almost the uniform custom with the most renowned accoucheurs to apply the forceps once in every eight or ten cases of labor, where, as thirty years ago, the forceps were not used in the great European hospitals more than once in every three hundred and ten cases. Craniotomy was performed then, by far, more often than what it is at the present time. Every one is too familiar with the evils associated with prolonged labor, particularly in the second stage, to require special comment. Speaking from my own past experience, I feel quite sure physicians, who do a general practice, are too liable to be intimidated by the old adage, meddlesome midwifery is bad. Many mothers have unnecessarily been allowed to remain in the throes of labor, the practitioner trusting to the sanative efforts of nature, until the soft parts have been irreparably damaged by pressure, or shock to the nerve centers, from which the patient never survived. Sudden rise of the temperature of the body should be taken as an omen of near approach of danger. I believe it proper not to wait over two hours in the majority of cases after the progress of labor has been arrested and the os uteri sufficiently dilated, without giving instrumental aid. It matters not whether the delay be dependent upon feeble uterine contraction, or disproportion between the size of the head and pelvis, nor does it make any difference in what part of the parturient canal thehead is arrested, let it be a t the superior strait in the cavity, or at the outlet of the pelvis. Mere temporary suspension of labor pains should be no reason for interception; but when there is a probabilty that the powers of nature are likely to fail in effecting their purpose, time is not always a sure guide. An impacted head would do more violence to the soft parts of the mother in one or two hours than a receding head after each pain would in four or six hours. It is an established fact that labor may be prolonged without prejudice to mother or child, nevertheless, it is a growing opinion among obstetricians that the mere prolongation of labor is in its self a serious thing. The state of the uterus, in protracted labor, when the pains have partially ceased or entirely subsided, should not be overlooked. It is liable to be found on examination by palpation, in a state of continued or tonic contraction, and more than likely the irritation set up by this condition is one of the chief causes of powerless clonic contractions. Under such circumstances, instrumental assistance should not be delayed. There are other complications demanding the use of the forceps I have not attempted to give in detail. It is presumed every physician will, or at least should, resort to the means at his command as soon as obstacles arise, which, if not obviated, would prove detrimental to mother or child.

APPLICATION OF THE FORCEPS.

Before making the slightest attempt in this direction some preparation is necessary. The patient must be placed in the proper position; the rectum and bladder must be empty. The dorsal position is the one preferred in this country, which certainly has advantages over the semiprone, especially in the high forceps operation. We must assure ourselves the membranes have ruptured, the os properly dilated, the exact position of the head fully determined, and the possibility of pelvic deformity. In adjusting the forceps in vertex presentations, it is only necessary to remember there are practically but four cranial positions—two occipito-anterior and two occipito-posterior. The advice heretofore given in most all of the text-books on obstetrics, is to apply the blades to the transverse or biparietal diameters of the head, making it necessary in manipulating to introduce the blades with regard to each position. As to the use of anæsthetics in forceps delivery, that depends upon the nature of the case, whether the vertex is low in the excavation of the pelvis, or rests upon the perineum in the first and second cranial positions, and no serious complications existing. There is no necessity for etherizing the patient. The operation is excedingly simple, easily performed, and accompanied with but little pain. The condition of affairs met with in the high operation are quite different. In the latter it becomes necessary to pass the whole hand into the vagina, and possibly partially into the uterus, as the only sure guide to the introduction of the blades. Such a procedure is an exceedingly painful one to the patient before the genital tract has been dilated by the expulsion of the fœtus. The great disadvantage under which the physician has to operate when the head is high in the cavity of the pelvis, or above the superior strait, makes it imperative for the patient to be perfectly quiet. Hence the necessity of administering anæsthetics in the high operation, which should be pushed to the surgical degree. Having decided to operate, the patient is placed in the lithotomy position across the bed, the nates brought near its edge, and a covering thrown over the body, etherizing or not, as the case may require. And, taking for granted it is the simpler variety of the operation with which we have to contend, before rotation has been established, in the first cranial position, and that the blades should be applied over the parietal eminences. In this position the head occupies the right oblique diameter, with the forehead toward the right sacro-iliac syncondrosis, and the occiput toward the left acetabulum. In this case, the first blade is passed in the direction of the left sacro-iliac junction. The second, when introduced, corresponds to the right foramen ovale. In adjusting the forceps in the second cranial position, the manipulation is simply the reverse of the first. It is only necessary to remember the head lies in the left diagonal diameter of the pelvis. Usually more difficulty is associated with the management of occipito-posterior positions, by reason of the abnormal condition. In the third cranial position, the forceps are introduced precisely as in the first; and in the fourth cranial position the manipulation is the same as in the second. The forceps must be handled with the greatest possible care, to avoid the risk of injury to mother or child. The blades must be applied, during the absence of pain, directly to the surface of the fœtal head, guided by two or more fingers of the free hand. After the blades have been successfully introduced, and properly locked, the operator is required, in the first and second cranial positions, before rotation has taken place, to use traction alone, or combined with a very gentle swaying motion, invariably to be made in reference to the pelvic axis. No more compression should be exerted than what is sufficient to give a firm grasp of the hand, and to keep the blades from slipping. The occiput will rotate anteriorally as it descends, provided the proper amount of time be allowed the diffluent head to adapt itself to the pelvic cavity; the handles held loosely during the intervals of pain, and traction kept up simultaneously with uterine action. In occipito-posterior positions, there are some peculiarities in the mode of delivery which it is necessary to bear in mind. Rotation anteriorally of the occiput often occurs spontaneously, even at a very advanced period of labor. In this class of cases we are justifiable, during extraction, of imparting a moderate amount of rotary action to the blades. The danger associated with any undue attempt at artificial rotation is obvious to you all. There is a very close analogy between the mechanism of vertex and face presentation. The face, like the head, descends into the pelvis, with its long diameter in one or the other of the oblique diameters of the brim. Taking the chin as the mechanical equivalent of the occipit, there are four face positions—two mento-anterior and two mento-posterior. In case it should become necessary to use the forceps in mento-anterior positions, traction in the axis of the pelvis, remembering to raise the handles toward the symphysis as the forehead, vertex, and occiput successively sweep over the perineum, is all that is required, except to keep in mind that traction must be made synchronous with the pains; and, in case of inertia, we are to stimulate the natural expulsive efforts as much as possible. The chin will rotate to the front as the head descends, and the labor will terminate with but little more difficulty than in vertex presentations. Few obstacles are met with in obstetric practice which give the physician more anxiety than mento-posterior positions—wherein the chin rotates into the hollow of the sacrum. In this class of cases, we should not hesitate to make a very decided effort, keeping out of harm's way, to rotate the chin anteriorally, before the face fully occupies the antero-posterior diameter of the pelvis. It is here, possibly, the straight forceps will be found of the most service. In the high forceps operation more difficulty obtains. We may be required to grasp a movable head above the superior strait, or it may be tightly wedged in the upper part of the cavity, with its long diameter in the transverse of the pelvis. The operation can not be performed without incurring more or less risk. Every one should feel the weight of responsibility before making the attempt. The conditions which justify the expedient are those in which the distortions do not reduce the conjugate diameter below three and one-half inches. The head must be arrested at the brim, or it will not descend beyond the upper part of the cavity, by reason of moderate contractions. Hemorrhage, inertia, and the like, may occasionally demand it. The general principles of adjustment and traction are identical in most all cases. When the operation is to be performed before the head enters the pelvic brim, it should be fixed as firmly as possible by abdominal pressure—the cervix and other soft parts guarded from injury. As has been implied, obstetric authors heretofore have strongly urged the propriety of applying the forceps to the sides of the child's head, especially in the low operation; and some contend it is best in all cases. The practice, of late, has been almost entirely abandoned by many of the most distinguished accoucheurs. It is admitted, in adjusting the forceps in the high operation, the blades must be introduced with regard to the sides of the pelvis, disregarding the position of the head. At present, it is generally advised that this should be the plan adopted in all cases of forceps delivery, whether the head be high or low. Drs. Barnes and Harris strongly contend, let us do what we will, and attempt as we may to pass the blades in rotation to the child's head, they find their way to the sides of the pelvis, and the marks of the fenestra on the head always show that it has been grasped by the brow and sides of the occiput; hence, it is considered to be an unnecessary complexity and embarrassmant to endeavor to vary the position of the blades in each case—a needless procedure which renders more difficult an operation that should be simplified as much as possible. The precise position of the head should be determined—not that it is required specially in the introduction of the blades, but that we may fully understand its progress. Rotation of the head within the blades will take place as it descends if a proper instrument is used—one which will not reduce the cranial diameters by actual compression. Such an instrument is found in the pattern of Simpson. His forceps are three and one-half inches at the widest part between the blades after being closed, and one inch and an eighth at their extremities. At present, we have two varieties of forceps in general use. Simpson's represents one type, which is designed to act as a tractor, and is applied to the sides of the pelvis in all cases. Hodge's forceps is one of the most extreme of the other class. It is a powerful compressor, consequently is adjusted to the biparietal diameter of the head.

The position of the patient for the use of the long forceps, at the superior strait, is the same as for an operation in the pelvic cavity. The left-hand blade is introduced first, well guarded with the fingers of the right, or, if needs be, the whole hand inserted into the vagina. The blade is carried along with exceeding care, in accordance with the curves of the pelvis, being sure of its passing inside of the uterus and judiciously applied to the surface of the fœtal head. The right-hand blade is adjusted in a like manner, proper caution being observed that they should lock without force, which they will do if properly manipulated. After junction, the first efforts of traction must be altogether in the axis of the brim, and this is accomplished by pressing the handles well back toward the perineum; and, if compression of the blades is not too great as the head descends, it will probably take the usual turn of itself. All in all, it is better for the operator not to make any decided attempt at artificial rotation. The direction of the tractive force should be changed as the head advances to the axis of the outlet. In case the blades rotate with the head, it is better to unlock and reapply them with regard to the sides of the pelvis. Too great caution can not be observed in preserving the perineum. When the presenting part has reached the floor of the pelvis, we should desist from making further traction, and trust thereafter to the expulsive power at least until the parts have become relaxed; and, if the indications are that the perineum is likely to give way, we should advise the patient not to bear down. The almost irresistible desire to speedily terminate the labor is an evil which must be scrupulously guarded against. Time and exceeding care are the chief elements of success at this stage of the operation. How are we to manage the after-coming head? The safer plan. I think, for us to adopt, is, when the time comes, for us to give assistance. The patient should be placed in the proper position for the use of the forceps—the instrument prepared and placed near at hand; and, in case the head be arrested, and after speedily resorting in vain to the most reliable means to dislodge it—knowing at best there will be suspended animation of the child in five or six minutes—the blades had better be quickly slipped over the parietal eminences and locked, the head disengaged immediately. As a general rule, it will be found that rotation of the head has taken place. The blades are inserted on the abdominal side of the child without much difficulty, an assistant being required to raise its body well up toward the symphysis of the mother.

Are we justifiable in attempting to deliver by the forceps before the os uteri is fully dilated; and, if so, to what extent must it be at the time of operation? It is assumed that four inches is the greatest diameter of expansion of the os at the time the head is passing through it. In order to have a more correct understanding, Dr. Johnston divides this four inches into five equal parts. He, with others, thinks it safe in skilled hands to commence the operation when the os is dilated two-fifths, provided the parts are dilatable. In his recent clinical report he gives fifty-nine tabulated cases in which the forceps were used, when the os was dilated to the extent above mentioned; seventy-one cases where the os uteri was three-fifths dilated, and thirty-nine where it was four-fifths dilated. It appears the ratio of deaths of mothers and children was a little higher in the first class of cases than in either second or third. However, the complications which demanded instrumental interference were much more severe in the first class.

At the conclusion of Dr. Lane's paper the subject raised in it was taken under discussion by the Society, pertinent remarks being made by Drs. Day, Ash, Seaman, Carr, Reed, and Clements.

Dr. Brothers, of Bunker Hill, said:

Dr. Lane's paper has afforded me much gratification. In it he has so nearly gone over all the ground as to leave little to be said, and less to take exception to. If I understand him correctly, he does not use the forceps as a compressor. In this I believe he deceives himself. From the construction of the fœtal cranium, it is very susceptible of being, and generally *is*, more or less, compressed in natural labor; and, by use of the forceps, compression necessarily ensues, if not before, certainly when traction is made, and the head is drawn from a larger to a smaller space; and experience demonstrates that children are often saved by the forceps in contracted passages in which the head was arrested.

The extent to which compression can be carried with safety we have no means of determining in advance. In the use of instruments, the line of safety may be said to be where the disproportion between the diameters of the fœtal head and the pelvis is not great enough to make delivery impossible without injury to the maternal structure, or dangerous compression of the fœtal cranium, always providing the forceps are judiciously chosen and intelligently used.

At the superior strait the operation is never devoid of the risk of these dangers. How much were these risks lessened by following the teaching of the older writers, who never used the long forceps, but resorted to craniotomy, thus sacrificing *every* infant.

Fortunately a flood of light has been let in, and on this point an almost entire change of front has taken place within a half century among the English speaking writers.

The Continental writers were in advance of their Anglican contemporaries in the use of the forceps; and their statistics, in marked contrast, present food for serious reflection; for, according to Prof. Barker, while Nagle delivered with forceps 1 in 31, and Seibold 1 in 7, they respectively performed craniotomy 1 in 1,711, and 1 in 2,093; while Churchill, who delivered by forceps 1 in 546, found it necessary to perform craniotomy 1 in 149! Has the thought never occurred that possibly there may have been too frequent slaughter of the innocents?

The only case of craniotomy I know any thing of personally occurred nearly twenty years ago, in which, after perforation, a messenger was dispatched to another town after more chloroform; the patient regained consciousness, and was delivered unassisted of the mutilated child. I examined it next day. My feelings are that this was one of the unnecessary slaughters.

Fistula and ruptured perineum have been alluded to in the discussion as possible results of the use of forceps. In over twenty years' practice I have had but one of the first, and that in a case to which I was called when the woman had been ninety-six hours in labor. The long continued pressure of an enormous head is what I attributed the calamity to, and not to the instruments, which did not touch the site of the fistula. In the past five years I have applied forceps once in eight cases—not all in my own practice. In twenty-one forceps deliveries there has been only one slightly lacerated perineum. I think full that large a percentage of that accident will be found in normal labor, if not more. In fact I am convinced that the forceps, properly used, prevents, rather than causes rupture. Reviewing my use of the forceps from the standpoint of the experience had, and results accomplished, I have never regretted its use in a single case. On the contrary, the regrets have been, at the time, in some cases, that the use had not been earlier, and in others that they had not been used at all.

Michigan State Board of Health.

The regular meeting of the State Board of Health was held in Lansing, on Tuesday, April 8, 1879. The following members were present: Dr. R. C. Kedzie, Hon. LeRoy

Parker, Rev. D. C. Jacokes, Dr. H. O. Hitchcock, and Secretary Henry B. Baker.

President Kedzie stated that on account of ill health and business connected with oil matters, he had been unable to prepare his annual address. By a vote of the board, he was requested, if convenient, to make his annual address on the subject of the history of legislation relative to illuminating oils in the State of Michigan. The motion also included a request to have, in condensed form, the main facts bearing upon the dangers in the use of kerosene oil.

Dr. Kedzie was unanimously re-elected president of the board for the ensuing two years.

SLAUGHTER-HOUSES.

Dr. Kedzie presented the subject of slaughter-houses in towns and rural districts, and read a letter from F. Andrews, of Dowagiac, relative to slaughter-houses in his vicinity. Dr. Kedzie referred to the rules which he had prepared for the government of slaughter-houses in the township of Lansing, and suggested the desirability of butchers uniting in one house in cities of even the size of Lansing, for greater ease of methods, for cleanliness and sanitary arrangements. Referred to a committee of investigation and report. This committee is also expected to prepare a model set of rules for the regulation of slaughter-houses.

DEATH OF REV. MR. BRIGHAM.

The secretary announced the death of Rev. C. H. Brigham, a former member of the board, and proper resolutions of respect to his memory were passed.

NEW LEGISLATION.

The secretary also announced the passage by the present legislature of three new laws, which will tend to promote the public health in this State and increase the efficiency of local boards of health.

Of these laws, one provides that the council of each city and village shall be a board of health, unless there is other provision by special law, so that hereafter there is to be a local board of health in every township, village, and city in the State; one law makes it the duty of health officers of cities and villages to notify the prosecuting attorney of any neglect by householders or physicians to report cases of disease dangerous to the public health; and one authorizes boards of health in cities, villages, and townships to furnish free vaccination to the inhabitants thereof. The secretary is to prepare a circular to health officers in cities, townships, and villages, calling attention to some of their duties under the new laws, and otherwise setting forth their duties as health officers.

The board adopted a resolution tendering a hearty vote of thanks to Congressman McGowan for his labors in procuring the passage of the bill which has recently become a law, establishing a national board of health.

COMMUNICATIONS WERE RECEIVED

From Hon. C. D. Randall, of Coldwater, suggesting the propriety of the selection of healthy locations and the determining of plans and specifications for all new State institutions, by the board of health, and that all systems of drainage, sewerage, etc., in public buildings hereafter to be erected, should be approved by the State Board of Health previous to their adoption.

Also, from J. A. Russell, M. D., of Edinburgh, Scotland, setting forth a plan for the mutual sanitary protective association for cities, accompanied with a leaflet, giving the plan adopted in that city.

Also, from the national educational bureau at Washington, inclosing a communication from Wm. M. Evarts, Secretary of State, giving notice of a prize of £100 offered by the Royal College of Physicians, of London, for the best essay on hydrophobia, its nature, prevention, and treatment.

Also, a communication from B. B. Ross, of East Saginaw, suggesting that health officers ought to visit all cases reported as dangerous to the public health and verify the diagnosis of the attending physician. He thought this would improve the accuracy of the weekly reports of diseases by health officers. The communication was referred to the committee on legislation, as was also a suggestion by Dr. Baker that the health officer should be authorized to act promptly for the restriction of such diseases, if found to be correctly reported. Another communication on the same subject, received from E. S. Richardson, M. D., was referred to the same committee.

At the afternoon session, Dr. Lyster was present, and presented an article, portions of which he read, relative to the reclamation of

OVERFLOWED, OR SATUATED LANDS.

Reference was made to large tracts of land on the Crapo farm, the Chandler farm, and near Detroit, and descriptions given of the methods adopted and their results. It also included a record of experiments made for the past twenty years in a large tract of country near Bordeaux, France, translated from a French report. This paper showed the great importance of the work, both pecuniarily and as directly related to health. The original French paper was illustrated with a diagram, showing the relations of the birth-rate to the death-rate as connected with this process of reclamation. It showed an increase of the birth-rate over the mortality until the Franco-Prussian war.

In the discussion which followed, Dr. Kedzie referred to a paper by Judge Albert Miller, of Bay City, on the same subject, giving his experience in the Saginaw Valley, where he is reclaiming a section of very valuable land by protecting it with dykes, pumping the water out with steam pumps, and then keeping down the leakage by means of wind-mills. He received the thanks of the board for his paper, and was requested to extend his investigations far enough to include the inspection of overflowed lands in Gratiot County and some other portions of the State, and report upon them, together with recommendations as to what ought to be done.

Dr. Lyster also reported having prepared, by request of the board, the draft of a plan for a circular on the subject of

HOUSE-DRAINS AND PUBLIC SEWERS.

The circular is to be studied and elaborated by each member of the board before it is printed and sent out.

Dr. Kedzie said he wished to give an additional point to be considered in testing tin utensils for the presence of lead. His method heretofore published, as thus modified, would be to moisten the tin with nitric acid, over a space the size of a dime, dry thoroughly, place thereon a drop of water, and then a drop of iodide of potassium. If the tin is adulterated with lead, the spot will assume a yellow color.

In reply to a question as to the

DEATH-RATE IN THIS STATE,

Whether increasing or decreasing under the enlarged sanitary work done in the past, Dr. Baker said it was difficult to speak as regards the whole State, but he brought forward a statement received from Dr. W. H. Rouse, correspondent in Detroit, giving the total interments in that city since 1873, whereby it appears that while the number of inhabitants has been constantly increasing, the number of interments has been constantly decreasing. The figures given were as follows: Interments in 1873, 2,506; in 1874, 2,386; in 1875, 2,321; in 1876, 2,317; in 1877, 2,105; in 1878, 1,909. He gives for the years 1876–7–8 the number of deaths from each cause, whereby it appears that the decrease has been, in certain preventable diseases, rather tending to show that the sanitary work at Detroit, in perfecting the water-supply and otherwise, has resulted in lessening the death-rate. In one instance it is almost certain that the lessening of deaths has come from vaccination. In 1877 there were one hundred and seven deaths from small-pox, and vigorous efforts were made for a thorough vaccination throughout the city. In 1878 not a single death was reported from this cause.

NEW LEGISLATION.

Hon. LeRoy Parker, from the committee on legislation, reported having prepared various bills which had been brought before the legislature, three of which had become law. One relative to an improved system of holding coroners' inquests, and another, in which he had acted with the secretary of the board, in reference to an improved method of collecting vital statistics, are now before the legislature. The memorial for

A SANITARY SURVEY

Had been delayed, owing to lack of time and to the difficulty of getting the matter properly before the legislature. Mr. Parker and Dr. Baker recommended that the details of a plan be worked out in the board before presenting it two years hence for legislative action; and that there be a committee on sanitary survey, charged with the preparation of schedules for such survey, to which committee all papers or suggestions relating to the subject should be referred. A committee of three was appointed.

This was the meeting for the reorganization of committees; but as there are vacancies in the board, the subject was postponed until the July meeting. A large portion of the work of the board is assigned to committees, and as communications come to the secretary, they are forwarded to the proper committees for action.

During the quarter, communications have been received and referred to committees as follows:

To Homer O. Hitchcock, M. D., (1.) A postal from W. W. Switzer, M. D., relative to three cases of typhoid fever, caused by the use of bad water; (2.) A letter from S. P. Gray, relative to sawdust and mill-refuse in streams; (3.) A letter from J. D. Johnson, sending a petition against allowing sawdust, etc., to flow into the lake; (4.) A letter from C. W. Marvin, M. D., being a study of an outbreak of diphtheria in Gratiot County.

To Henry F. Lyster, M. D., (1.) A letter from Josiah Miller, relative to flooding Chippewa River for driving logs; (2.) A letter from Daniel F. Swain, of Hungerford, relative to cutting away a dam; (3.) A letter from W. F. Jenison, of Eagle, relative to drainage, etc.; (4.) A letter from J. Van Zandt, relative to the dam on Lincoln Lake.

The secretary, having made some experiments and had some correspondence on the subject of illuminating oils, was requested to turn over to Dr. Kedzie, if he desired it, all correspondence in relation to that subject.

EXAMINATIONS IN SANITARY SCIENCE.

Dr. Lyster made a report on the proposition, originally made by him, that the board shall offer to examine candidates in sanitary science and its different branches, recommending that the board make preparations for examinations by its different committees on subjects assigned to them, and that certificates be given to those who ask for and sustain examinations. It was thought that the publication of the examination papers would tend to increase the interest and knowledge concerning the subject among the people generally; and that the examinations would tend to secure throughout the State a class of physicians especially intelligent on the subject of sanitary science, and the public could have proof of their qualifications by means of these certificates. If the people see fit to select such persons for health officers, it would react well on the interest of public health, which it is the duty of the board to promote.

Dr. Baker favored it, and suggested that schedules of questions in each of the several branches of sanitary science be prepared for this purpose. The secretary was directed to procure copies of the examination papers in sanitary science from different colleges in foreign countries.

SANITARY CONVENTIONS.

A communication was received from Dr. Peters, of Tecumseh, inviting the board to hold a convention at that place. The board voted to hold two public sanitary conventions next winter, and each member pledged himself to make them a success. It is desired to procure at these meetings the greatest collection of sanitary utensils which can be obtained, from a common pie-dish to the most elaborate apparatus for heating and ventilation.

The time and place for holding such conventions will be announced as soon as determined upon; and it is hoped that dealers in sanitary appliances will exhibit their wares, and describe their uses and advantages.

Drs. Hitchcock, Lyster, and Baker were appointed a committee to prepare for the details of these sanitary conventions.

The secretary presented a report of work done in the office during the quarter. It included the distribution of over one thousand copies of the sixth annual report; the printing, addressing, and mailing of about two thousand five hundred blanks for return of annual reports of health officers and clerks of local boards of health, a large number of which had been received, examined, and filed. Circular 29, relative to diseases in Michigan in 1878, had been sent to each correspondent, and replies from twenty-six persons had been received, examined, and filed. Meteorological observations had been taken at the office during the quarter. Meteorological registers and reports of diseases had been received from observers, to whom, also, the regular distribution of blanks had been made. Work had been done in compiling the weekly reports of diseases, and the meteorological registers for 1878. The correspondence and the routine work of the office had been fully up to the average.

The subject of

ANNUAL REPORTS OF HEALTH OFFICERS And clerks of local boards of health was discussed. It is found difficult to compile these reports in a satisfactory manner by counties, because in many cases one or more townships are not represented by reports.

Some officers fail to report because no reports are made to them; though one effort of the State Board is to learn just such facts as the probable extent of delinquencies in the reports of physicians and householders.

The next regular meeting of the board will be held July 8.

SELECTIONS.

New York Academy of Medicine.

Stated Meeting, Thursday Evening, April 3, 1879.

FORDYCE BARKER, M. D., LL.D., PRESIDENT, IN THE CHAIR.

THE paper of the evening was then read by Dr. James R. Leaming, on

A NEW CLASSIFICATION OF PULMONARY PHTHISIS, WITH PRACTICAL CONSIDERATIONS.

The tendency of the present time, he said, was to rearrange, classify, and describe, with more detail, the various affections met with in the practice of medicine. As an instance of the advantage of this he cited the case of the so-called typhoid diseases, such as typhoid, typhus, and typho-malarial fevers, which were formerly considered but a single affection (this even being a decided advance over the extreme confusion that had previously prevailed), and were afterward described, by Murchison and others, each as a distinct disorder, differing from the others of the group in its etiology, lesions, clinical history, and duration. That which had been so successfully accomplished in this class of affections remained to be done for the various forms of disease now known under the general name of pulmonary phthisis. He then quoted Sydenham's graphic delineation of the clinical characteristics of consumption, and remarked how little had been added to this description written two hundred years ago! Laennec believed that, with scarcely an exception, all cases of phthisis were of a tuberculous character; while Broussais inclined to the idea of the ancients, that they were of an inflammatory nature. Laennic was deserving of all praise for his distinguished services, but, unfortunately, his well-earned fame had been instrumental in carrying some grave errors down to the present time. The more modern pathologists (particularly the Germans) had demonstrated that there were other forms of phthisis besides the purely tubercular, and their views had been adopted by many English and American authorities. Dr. Andrew Clark, in a lecture delivered at the Bellevue Hospital Medical College, and reported in the New York *Medical Record* of December 14th and 21st, 1878, divided pulmonary phthisis into three natural classes, and Dr. Leaming stated that he accepted his classification in part. The tuberculous and fibroid forms he regarded as not only distinct, but essentially opposite diseases, although they sometimes coexisted, and thus produced peculiar results. The classification which he had himself adopted, and which he now proposed to set forth, was founded both on clinical and *post-mortem* investigation. There were two principal forms of phthisis, he said, the tuberculous and the fibroid varieties. Under each class he enumerated two subdivisions, as follows:

I. TUBERCULAR PHTHISIS.
  (1.) *Uncomplicated tubercular lung.*
  (2.) *Tubercular lung with fibroid pleura.*

II. FIBROID PHTHISIS.
  (1.) *Fibroid lung and fibroid pleura.*
  (2.) *Fibroid lung and pleura, complicated with tubercle.*

UNCOMPLICATED TUBERCULAR LUNG

He believed to be a very rare condition. He had distinct recollections of but three cases of it, and no notes upon them. Louis had said that nothing was so frequent as adhesions of the lungs to the pleura, and out of one hundred and twelve cases, in only two were the lungs free from adhesions throughout their whole extent. In that form of phthisis, the early history was very apt to be obscure, and the diagnosis difficult. Often the first sign only made its appearance after a cavity had been formed. It generally occurred in early adult life, and in those who had been living on poor food, or surrounded by unwholesome sanitary conditions. In the early stage, when careful auscultation was made, a deficiency in the respiratory murmur, with slightly raised pitch, could be detected; but no rales. Neither was there any cough. When the tuberculous nodules softened, we had cough, expectoration, hectic, and all the well-known rational signs of phthisis. Then it was that fatal hemorrhage might occur from erosion of arteries.

When a cavity had been formed, the physical signs denoting its presence were not so plain as in fibroid phthisis, because the healthy lung tissue by which it was ordinarily surrrounded was not a good conductor of sound. Wasting of the body commenced with the formation of cavities; and the case might end in general tuberculosis.

As to the treatment, that was of the greatest service which acted in the way of prevention. Chloride of ammonium was both a preventive and a curative agent; and cod-liver oil, quinine, the various other tonics, and change of scene and air, might all prove useful. If the heart's action was feeble and irregular, digitalis should be given, and atropia should be used to control night-sweats. In the way of local measures, strapping with adhesive strips were of service, and small blisters might assist nature by inducing adhesions. If forced expansion was made when there were newly formed cavities, there was great danger of pneumorrhagia. Fatal hemorrhage rarely occurred after a cavity was a week old.

TUBERCULAR LUNG WITH FIBROID PLEURA.

In the second subdivision of Dr. Leaming we had tubercular concretions following fibroid in the pleura. In that there was a greater liability to fatal hemorrhage than in the other. The arteries seemed to be more easily eroded, and when the hemorrhage (which was apt to occur early in the disease) came, it was almost always a surprise to the physician, as well as to the patient and his friends. The first indication of danger was the filling up of the nose and mouth with frothy blood, and the patient was literally drowned before anything could be done to relieve him. Another accident which might occur (and which was also liable in the first variety) was the causation of hydro-pneumothorax by an opening being formed into the pleural cavity as the result of the softening of a tubercular concretion. That gave rise to a great amount of pain and dyspnœ; and death was pretty sure to occur after a longer or shorter period. Recovery was rare after this condition has occurred. The diagnosis was sufficiently easy, and the indications in the treatment were to secure perfect rest (which could best be accomplished by strapping the chest), relieve pain, and control inflammatory action.

FIBROID LUNG AND FIBROID PLEURA.

In the first subdivision of the second class we had fibroid lung with fibroid pleura. Here was something, said Dr. Leaming, quite opposite to the tubercular process. There was really a destruction of tissue, while that was merely a destruction of function. It differed from the tubercular variety of disease also in being much more amenable to treatment.

The writer was of the opinion that nine-tenths of all cases of phthisis commenced with interpleural plastic exudation. Hence, the early recognition and treatment of that condition were of vital importance, and he believed that the day was not far distant when (on account of the more general adoption of that view) the mortality from phthisis would be much less than now.

In that class the disease always originated in fibrination of the pleura. That was the local starting-point; but there was always a predisposing cause in some depression of the vital force which might be due to various circumstances. Thus, any individual who had long been attendant upon the sick, the student unsuccessful in passing his examinations, the man of business perplexed with unusual care, the disappointed lover, the defeated soldier, were all peculiarly liable to be attacked with fibroid phthisis. In like manner, syphilis, masturbation, the sequelæ of the various exanthemata, and similar depressing influences were prolific in its causation. The interpleural exudation, said Dr. Leaming, was a makeshift of nature, and it was often immediately reabsorbed. If it was not reabsorbed, however, it underwent organization and increased in extent; the result being that the pleura was pressed firmly down upon the air-sacs beneath.

The writer then went on to describe at some length the peculiar anatomical characters of the nutrient arteries of the lung, which, he believed, played a very important part in the history of fibroid phthisis, and also satisfactorily explained some phenomena which would otherwise remain complete mysteries.

As fibrination went on, he continued, the patient gradually yielded before it. The outward form of the chest became more or less contracted and altered in shape, and the sufferer was obliged to stoop forward to prevent the racking cough that was so troublesome. Like some strong anaconda, the fibroid process was winding its ever-tightening coils about him.

Thus far the trouble had been confined entirely to the pleura; but in the second stage of the disease the fibrous bands extended down through the lungs themsëlves, and also involved the heart. Often a loud, systolic murmur was thus occasioned.

The early physical signs were the same in each variety. Their distinguishing characteristic was soft tearing rales, which it required a somewhat practiced ear to separate from the ordinary respiratory murmur beneath. When such signs could be made out, however, two facts were certain, viz: that there was plastic exudation in the pleura, and that the lungs were free. At the later state of the process the rales were dry and crackling, and there was no trouble about making them out.

The treatment was simple and easy enough at the beginning of the trouble; but the longer the process went on the more difficult it became. Even if the exudation had existed for several weeks, however, the disease might be cured. Perhaps the most useful of all remedies here was the chloride of ammonium, which should be given in doses of from six to ten grains every waking hour. In addition, the patient should be surrounded by the best hygienic conditions, walk out in the country as much as possible, take deep and long inspirations to expand the chest, and live to a great extent on milk diet. If these measures were unsuccessful, the bichloride of mercury in small doses should be tried, and Dr. Leaming believed that it acted as a tonic, as well as an alterant and solvent of adhesions. Some cases would not yield even to that, and then he advised the administration of mercurials to the point of salivation; which he thought had saved the life of the patient in a number of instances in his hands. In addition, small blisters would usually be of service; and, above all, chest-expansion should never be neglected. One of the best means of securing that, he believed, was to ride a fast-walking horse. Care must be observed, however, not to do violence to the adhesions that had formed by taking too active exercise. When from that cause, or as the result of any accident, pulmonary apoplexy ensued, complete rest should be enjoined, and the chest strapped with adhesive plaster. The advantages of climate and change of scene were also dwelt upon.

FIBROID LUNG AND PLEURA, COMPLICATED WITH TUBERCLE.

In the second subdivision of the second class were found the greater proportion of all patients suffering from phthisis. That form he believed to be also essentially fibroid; the tubercular element being a secondary phenomenon.

Niemeyer, said Dr. Leaming, made the statement that the greatest danger to be apprehended in catarrhal pneumonia was that it might become tubercular. We would say rather that that was the greatest danger to be apprehended in fibroid phthisis. As the result of that condition, the well-known symptoms of phthisis were noted —such as cough, chills, fever, night-sweats, wasting, etc.—and at length the characteristic expectoration announced the formation of a cavity. The physical signs were always very distinct here, on account of the fibroid tissues in the lung and the hardened condition of the pleura. When the cavity had been formed, perhaps the patient might begin to sleep well, have an increased appetite, and feel better in every way; but there was seldom complete relief, and even if there was it was usually of short duration, for there were apt to be other tuberculous concretions undergoing softening at the same time.

Cavities in the lung, however, were not always of tubercular origin, as they might be due to fibroid disease, gangrene, etc., and might also be of traumatic origin. But to whatever causes it might be due the formation of a cavity in a fibroid lung was always of grave import, because it was so liable to become tubercular.

The treatment of that variety must consist in a judicious combination of that previously given for the fibroid and tubercular forms of phthisis. When the tubercular element had not already supervened, one supreme effort must be to prevent that complication. If, however, there were tubercular concretions, we must direct our attention toward preventing the extension of either form of disease. To that end the application of small blisters, and the confining of the patient to an exclusively milk diet for a time, were frequently of great service. Whenever fibroid phthisis was present we must endeavor to invigorate the vital powers, and Dr. Leaming, as before mentioned, fully believed in the tonic effect of mercury, as well as in its usefulness, in carrying off effete products from the system. Of course caution must be observed in its use, but we need not deprive ourselves of its invaluable aid on that account. What would be thought, said he, of a surgeon who was afraid of a sharp knife?

The President, in announcing that the paper was now before the Academy, remarked that it showed great evidence of profound study and thought, as well as careful clinical observation, and that he hoped that the novel pathological and therapeutical views which it contained would elicit a full discussion on the part of the Fellows present. He would call first, therefore, on Prof. Flint.

Dr. Flint said that before coming to the meeting he was not aware what line of remark the paper would take. As the Chair had stated, the classification was a novel one, and he thought that a certain amount of study upon it would be necessary before one could intelligently adopt it. At present he was not prepared either to take issue with the writer or to accept his opinions. He recognized in Dr. Leaming a very zealous worker; but there was one pathological condition underlying his views, which, he must say, he believed to be erroneous, and that was the relations of pleurisy to phthisis. It had always seemed to him that the pleuritic disease met with in these cases was secondary to the pulmonary; while the writer regarded the pleuritic trouble as primary.

The classification of phthisis was a large subject, but he proposed to make but a very few remarks upon it on this occasion. Acute tuberculosis, he thought, must necessarily be considered as a distinct affection. So the purely fibroid variety of phthisis could be readily distinguished from other forms. Then there remained those cases of chronic lung-trouble, in which each of these elements seemed to enter to some extent; and it was difficult to know how to designate them.

The point at issue was, whether true miliary tubercles were present, and what was their relation to cases of chronic phthisis characterized by softening of the lung-tissue, the formation of cavities, etc. The views held as to this relation must, therefore, govern, to a great extent, our adoption of any classification. At present he did not feel that he could conscientiously commit himself to any definite opinion in regard to the matter; and he was content to wait until further research should perhaps decide it. Such studies were to be based both on histological data and clinical data; but he believed the latter to be of really the most value.

Dr. Loomis thought that the paper deserved careful consideration, and that the views which it advanced should be discussed from different stand-points. Any satisfactory classification, he believed, should be based on three things: *first*, etiology; *second*, morbid anatomy; and *third*, clinical history; and it seemed to him very difficult to make such a classification in which these various points would not clash. The reason was, that the opinions of the scientific world as to some of the most prominent and constant histological changes observed in phthisis were not yet settled. If he understood Dr. Leaming properly, he took issue with the ordinary view that pthisis originated in the lung-tissue, and held that the primary changes in the disease occurred in the pleura instead. He did not understand, however, exactly what the writer meant by the term "fibrination," or the expression "plastic exudation undergoing organization." If we were satisfied in regard to any pathological facts, it was that all plastic material underwent absorption, and that the later changes observed, such as adhesions, fibrous bands, etc., were the result of a hyperplasia, or increase in connective tissue in the pleura, the pericardium or the peritoneum. At length contractions took place in this tissue, and thus, when occurring in the pleura, they interfered more or less with the circulation and nutrition of the surface of the lung beneath. If Dr. Leaming were correct in his opinion very great pathological changes must necessarily take place in the pleura before they were discoverable; for in a large proportion of cases important changes could be detected in the lung long before there was any evidence whatever of trouble in the pleura. It was a difficult question to decide where the primary trouble originated, because the *post-mortem* examinations necessary to settle it must be made at a very early stage of the disease. Where autopsies were made in the advanced stages it was rather an assumption to say where the difficulty commenced. Auscultatory evidence, he thought, would not answer, because good diagnosticians differed utterly as to the significance of various signs met with in the chest. Personally he believed in three forms of phthisis, as described by Dr. Andrew Clark in his lecture; although this classification had been known to New York long before the visit of that distinguished physician. He could satisfy himself better with that division than any other; but he certainly was not bigoted in his views, and was still open to conviction.

Dr. E. Darwin Hudson, jr., believed that pleurisy was one, at least, of the causes of phthisis. Every student, he said, must notice the occurrence of pleuritic adhesions, not merely in connection with the later, but also the early stages of phthisis. We were taught that in inflammation of the pleura the serous membrane became denuded of its epithelium, and then assumed a villous condition, when adhesions were apt to be formed. He believed that if adhesions were present to such an extent as to cause more or less contraction of the chest, there would be definite and significant physical signs present, as had long since been recognized by Dr. Leaming. The latter was of the opinion that in a large majority of cases of phthisis interpleural plastic exudation was the commencement of the trouble, and that when that was present it could always be detected by a soft subcrepitant rale heard directly under the ear, and comparable to the sound produced by the tearing of wet cloth. He had also the authority of Rindfleisch for saying that no case of pleurisy ever occurred without a certain number of the air-sacs of the lung beneath becoming consolidated.

Dr. E. G. Janeway was the last speaker. He remarked that the question as to how far pleurisy could originate tuberculosis must be looked at in two ways. He had sometimes seen cases in which acute disseminated tubercle undoubtedly resulted from pleurisy, by septic infection: a process which it was difficult to explain. He could recall two instances in which, when there was no trouble whatever in the lung, there had been a sudden eruption of tubercle throughout the body; but at the same time he did not believe that phthisis ordinarily was to be ascribed to pleurisy. On the contrary, he considered that autopsies every day showed that when trouble both in the lung and pleura were found, that in the lung was undoubtedly the older of the two. That was evident, he contended, in those portions where the process was most recent. To his mind, therefore, it seemed plain that we could not, in the majority of instances at all events, attribute the phthisis to interpleural exudation.

As to pure fibroid of the lung, he was of the opinion that it was very rarely met with. If by the term fibroid, however, was meant a thickening of connective tissue associated with the presence of lymphoid cells, that was a much more common condition. Pathologists were by no means agreed as to what tubercle really was, and hence a great confusion of terms had arisen; but there now seemed to be a gravitation of current opinion toward the view that tubercle was of more frequent occurrence than was for a time supposed. In the last edition of Niemeyer's work a considerable modification of the views expressed by that writer was noticeable, and Rindfleisch had gone further back toward the old ideas than any other authority. There was a growing appreciation at the present time of the necessity for the consideration of constitutional tendencies; and it seemed demonstrable that there was ordinarily more of tubercle in phthisical lungs than Virchow formerly taught. Even Virchow, he imagined, was returning, to some extent, to the adoption of views that had once been discarded.

Professional Advertising in the Daily Press.

To the Editor of the Medical Record:

Dear Sir—Your correspondent, "Sic Nos," etc., has done the profession a service in calling attention to an abuse that appears to be rapidly extending. Hardly a week passes but one of the metropolitan journals contains a flattering notice of some favored member of the profession, and one journal in particular appears to have taken special pains to keep before the public the name of a prominent specialist in connection with certain "Talks to Young Men," etc. Just before reading the letter of "Sic Nos" in to-day's issue of the *Record*, I found in the New York *Times* a notice, nearly a column in length, of a new medical journal, "Edited by Dr. E. C. Seguin." The notice commences: "This is a new medical journal, and having a man so distinguished as Dr. Seguin for an editor," etc. Farther on we read: "This brings us to the editorial department of the journal, in which we find, first, some valuable matter by the editor on diseases pertaining to the nervous system, *for whose treatment he is particularly celebrated*," etc. (Italics our own.) Now, sir, where is this thing to stop, and where is the line to be drawn? Have we still a committee of ethics, or did it go out of existence with the subsidence of the mineral-water excitement that called it into being? If that committee is dead, we think that an end can be put to this sort of thing if you will give the different gentlemen concerned a little additional gratuitous advertising by transferring to your columns the public press notices as they from time to time appear, and we trust that those who have the real welfare of the profession at heart will take the trouble to send you such clippings as fall under their eye. NONNE?

Color-Blindness.

Read before the Medical Society, District of Columbia, April 9, 1879.

BY SWAN M. BURNETT, M. D.

BY the eye we take in not only the forms of objects, together with the variation in the intensity of the illumination known as light and shade, but also that peculiar quality we call color. If we saw only the form with the variation in light and shade, all objects would appear to us as they do in a photograph.

The quality of color does not depend upon the intensity of the light, that is upon the strength of the aerial vibrations, but upon the rapidity with which these vibrations follow each other. When the vibrations are of a certain slowness we have a sensation of red; when they attain the greatest rapidity which is appreciable by the optic apparatus, the sensation is that of violet. Between these two extremes we find inclosed all the colors of the so-called solar-spectrum, each color corresponding to a certain fixed number of vibrations of the luminiferous ether.

We can not enter into a consideration of the various theories that have been advanced respecting the perception of colors at the different periods in the history of physiology. We shall confine our attention to the one that has most common acceptance, since by it most of the phenomena of color perception are satisfactorily explained, as well as those of color-blindness.

I will state, by way of parenthesis, that there are some very valid objections to this theory, and physiologists are on the *qui vive* for one more satisfactory and more in keeping with the known laws of physiology and physics.

The theory that has appeared in most particulars to satisfy the demands of science is that known as the Young-Helmholtz theory. It was first promulgated by that great English genius, Thomas Young; but the times were not ripe for its acceptance, and his papers lay buried in the archives of the Royal Society until rediscovered and exhumed by the great German genius, Helmholtz. This theory recognizes three distinct kinds of nerves in the visual apparatus, which correspond to the three fundamental colors. These fundamental colors are not as was formerly supposed—red, yellow and blue—but, as has been abundantly demonstrated by Helmholtz and many others, red, green and violet. They are called fundamental because by various combinations of these all the other colors can be produced.

It has been supposed, then, that to each fundamental color corresponds a special division of the optic nerve. In other words, there are three kinds of nerve fibers entering into the composition of the nervous apparatus of vision. One of these is affected by red, a second by green, and a third by violet. But while red, for instance, affects most strongly one set of fibers, it affects in a less degree the other fibers also; and green, while acting principally on the fibers belonging peculiarly to it, affects also those of red and violet. When all these fibers are excited in an almost equal degree, we have the sensation of *whiteness*. White, therefore, would correspond to the sum of all the sensations which the visual apparatus is capable of perceiving. When all the fibers are excited, but one to a greater degree than the others, we then have the corresponding color predominant, but more whitish; that is, less saturated than when it is excited alone. When it is excited alone we have the color pure and in the condition known as saturation; that is, without any admixture of another color or of whiteness.

Having premised this much in respect to the physiology of color perception, we will proceed to an examination of those conditions where there is a departure from the normal. True color-blindness, in accordance with this theory, can be of four kinds; that is, *total*, where no color is perceived, but only light or shade; or *red*, *green*, or *violet* blindness. In the last condition, or *complete* color-blindness, as it is called, one of the sets of fibers corresponding to the three fundamental colors must be hindered in the performance of its functions. Under these circumstances we will have a marked alteration in all the remaining colors.

Suppose, for instance, that red is the lacking color. Not only will saturated red not be perceived and become black to such an observer, but all the other colors into which red enters will likewise be modified. Thus, for example, a feebly luminous red which contains also a small quantity of green, will be likened to green, because the red in it will no longer be perceived. Yellow will be whitish green, because it contains also a certain quantity of violet, green and violet in proper proportions being to such an eye white, and green itself will be a whitish yellow or red. Gray, you will understand, is a shade of white or a mixture of white and black, and only a relative term. A cloth which would appear white against a black wall will be gray if laid on the freshly fallen snow.

If green is the lacking color, saturated red will be more saturated, so to speak, than to the normal eye; yellow will be a lighter red; green will be gray, because it contains an almost equal quantity of red and violet, its *two* fundamental colors, an admixture of which must, according to the theory, produce white. Those shades inclining to yellow will be more reddish and of course confounded with the light shades of that color.

These examples will suffice to show you the modifications which the principal colors undergo in the two most common forms of color-blindness (red-green blindness) according to the theory, and they have been found to conform very closely with the facts as we have them in the actual cases under examination.

A few words would not be out of place here with reference to the history of the study of color-blindness. It appears that the first mention of color-blindness is to be found in a letter addressed to Joseph Priestly by Joseph Huddart in 1777, just a little over a century ago. The first important study of the question, however, was made by the English *savant*, John Dalton, the author of the Atomic theory, and in France, and, to a less extent, in other European countries, color-blindness is known as Daltonism. It seems, however, to be hardly the fitting thing to associate the name of the founder of modern chemistry with a defect in one of the senses. After him the matter was made the subject of study by Hemholtz and other physiologists. The subject was first studied in regard to its connection with practical life by George Wilson, of Edinburgh, in 1855. Farve, of Lyons, France, has also recently made many examinations of the employes of railways with reference to their perception of color.

To Professor Holmgren, of Upsala, Sweden, however, is due the credit of putting us in the way of making these examinations with great rapidity and exactness, and of giving such an impetus to the investigation of the matter that it is safe to say in a year's time there will not be an employe in railway or marine service in Europe whose color perception will not have been tested. Seldom has the labor of one man yielded such fruit in such a short time.

The important question now arises: How shall we test for color-blindness?

Several methods will probably suggest themselves to your minds at once. The examinee might be asked to name a large number of colors placed before him. This, however, would not give us the desired information; for many persons who are perfectly able to distinguish one color from another will give them the wrong names—calling red blue, and blue red. We can not therefore trust to this plan. He might be shown the solar-spectrum and asked to give the names of the colors and their shades; but the same objection would apply to this method, and besides a solar-spectrum can be used only under peculiar circumstances, such as we can not easily command in the routine of practice or in examining large bodies of people.

The simplest method would be to allow the examinee to select from a quantity of colors those which correspond to one which is given him as a sample. It is not then necessary for him to name the colors, and we obtain exactly what we wish, namely, his capacity of discriminating between different colors and different shades of the same color.

A second practical question now comes up, the importance of which those who have had no experience in such examinations will hardly appreciate at its full value, and that is the choice of the methods for the test-colors. We require a material whose colors are pure, that is easily handled, readily transported, and not expensive. The colored liquids are of pure color, but they are not readily transported, and the bottles would be easily broken. Colored glass is open to the same objection. Colored papers have the disadvantages of being easily soiled and of reflecting too much light from their surface, which would change the tone of the color, and they curl up and are easily torn.

Without mentioning further those which are for some reason or other objectionable, I will say that we find in skeins of Berlin wool, such as are found in all fancy stores, everything that we desire. We can get all shades of every color; the tints being aniline are pure; it is easily handled, readily carried from place to place, light is not reflected from its surface, and it is cheap.

Seebeck first suggested the use of these wools, but the peculiar method of employing them for obtaining a rapid examination and a certain result is due to Holmgren. These two points, however, are of the greatest possible importance when we have to examine large bodies of people, as the employes of railways, schools, etc.

We will now proceed to a brief examination of the Holmgren method of testing. We take as large an assortment of Berlin wools as can be procured, representing all the colors and at least five shades of each color. Green, gray, violet, and the shades of pink and brown should be especially well represented.

It is of first importance, of course, to determine whether the examinee is color-blind, and in the second place to find the kind of color-blindness from which he suffers. For the first test, then, we take a bright shade of green and lay this aside as a sample, and ask the examinee to select from the pile of colors all the shades which appear to him like it. If he selects only the shades of green he is not color-blind; if he selects, together with some shades of green, one or more of other shades of color, then he is color-blind, and we proceed to find the particular kind of color-blindness with which he is afflicted.

You will perhaps ask why it is that green is the color selected to test color blindness, and how an error in matching a green shade would imply the existence of blindness for other colors.

Green occupies a middle ground, as it were, and reaching, as it does, to both extremes of the spectrum it influences more than either of the other fundamental colors, the shades arising from a mixture of any two fundamental colors, and when any one of the fundamental colors is absent green will feel it most because it contains most of the other colors, that is, is less saturated or more brilliant. The sample selected as a "test" should be to the normal eye a bright shade of green, because it will then be most easily confounded with gray if any one of the fundamental colors is absent.

When it has been demonstrated that color-blindness exists, we apply the second test to make the differential diagnosis. The "test" sample in this case is a purple, which is a mixture of blue or violet and red, the two extremes of the spectrum.

Now, if the individual is not capable of perceiving red, of course the blue in the purple will be the only color seen, and he will lay blue skeins by the sample. If he is green-blind his two remaining fundamental colors, red and violet, which are purple to the normal eye, are gray to him, and hence green, gray, and purple are essentially of the same color. The red-blind lays, therefore, with the purple, blue, and violet, and the green-blind, green and gray, or other neutral tint. The violet-blind would confuse purple with red and orange.

Another point of great practical moment is the relative frequency of color-blindness. In our railway service there are many thousands of employes who control the movements of trains loaded with human freight by colored signals. If an engineer, for instance, can not distinguish red from green (the most common form of color-blindness), what but a merciful interposition of Providence is to hinder him from running into an obstruction ahead, though a red light warns him that the way is not clear? Red and green are the same to him, and he drives his engine ahead, carrying his passengers to death or mutilation. There are at least ten passenger trains whose safe incomings and outgoings every night at our two depots depend upon the correct appreciation of colors, and yet there is no law to require that the railway companies should test the color-perception of those to whom the lives of the community is intrusted. That there have not been more accidents referable to this cause is a miracle.

The examinations that have been carried on in Europe show that among males there is one color-blind in about every fifty.

It is a very remarkable fact that the defect is exceedingly rare in females. Among twelve thousand women examined and reported upon up to date, only thirty-one were found color-blind, or about one-fourth of one per cent. Even this, I think, will be considerably reduced by a more strict examination, since some are without doubt included who are only partially color-blind, that is, have some confusion as regards the finer shades of colors.

This fact would seem a support to the other facts pointed out by Darwin relative to the transmission of certain peculiarities by sex. Women, we all know, are much more engaged in discriminating between colors and different shades of the same color than men, and this more highly educated sense seems really to be transmitted to their daughters as a sexual peculiarity.

Another question of interest also presents itself in this connection regarding the influence exercised by race and nationality on the color perception.

From statistics thus far obtained, it would seem that the Jews are more liable to color-blindness than Christians. Whereas among Christians the percentage is about 2, in the Jews it is about 4. It was for the purpose of determining whether race did exert an influence on the ability to perceive colors that I obtained permission from the board of school commissioners to test the color perception of the children in the colored schools of this district.

I have examined up to this time 3,050 pupils, ranging in ages from six to eighteen years. Of these 1,359 were boys, and 1,691 girls. I found twenty-two boys color-blind, or 1.6 per cent., and two girls, or 0.11 per cent. Total percentage, 0.78. There were among the boys seventy-eight with a diminished color-sense, that is, though making mistakes at first, they were able, after a long examination, to sample the colors properly. Among the girls there were thirty-one with this diminished color-sense.

The distinctive difference between these two classes of color-blindness and diminished color-sense is, that the former is a congenital defect and can not be remedied by education, whereas the latter is, without doubt, capable of being greatly improved. The importance of this distinction to the individual affected is, as you can readily see, very great. One whose color-blindness is a physical defect in the construction of his nervous optic apparatus, incapable of remedy, would clearly be debarred from many occupations open to those with a normal color perception.

Comparing, then, the results of my examinations with those made by other investigators among the white race, I find that the negro race is less liable to this defect than the white race. Among the whites the males have a percentage of about 2.5, while according to my examinations the male negro has only 1.6 per cent. Of course it may be objected to my results that the negro in this country is not of pure blood, but all those I have examined had a greater or less mixture of the negro blood, and their antecedents on one side at least were lately slaves. A limited admixture often carries with it the tendency to, or immunity from a disease. Thus, as I have shown,* the negro has a most enviable immunity from true trachoma or granular lids, and the immunity even extends to the mulattoes. So we are justified in inferring that the less tendency to to color-blindness in the negro—if it should ultimately be proven to be a fact—would be shared by those of mixed blood. The probable reasons of this low percentage of color-blindness in this race is a question for an ethnological society, pure and simple, rather than a medical society, and I have reserved its consideration for another paper.—*National Review.*

The Cure of Hemorrhoids by the Hypodermic Syringe.

BY EDMUND ANDREWS, A. M., M. D.,

Professor of Surgery in the Chicago] Medical College.

In a former number of this journal, I published the secret method of certain itinerant "Pile Doctors," and asked for information from all physicians who had any knowledge of the practical results of the treatment.

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*See paper on "Trachoma as Influenced by Race." Trans. International Ophthalmological Congress. N. Y. 1876.

This request, supplemented by other inquiries, has brought me responses from about three hundred physicians, and given me more or less knowledge of the results of over three thousand three hundred cases treated by the new method. From the material thus collected, I am able to present the following history:

In the year 1871, there lived in the village of Clinton, Ill., a physician named Mitchell. His practice being small, he employed his superabundant leisure in planning a new treatment for hemorrhoids. He was a good thinker, and soon conceived the idea of charging a hypodermic syringe with equal parts of carbolic acid and olive oil, and injecting the contents into the hemorrhoidal tumors. He also devised another and totally different plan, which was to take two large needles with triangular points, like those used by saddlers, and then to pick the piles to pieces, little by little, with the needles. Mitchell himself is said to prefer the needle operation, and several others have adopted it from him, but the plan of injections has proved by far the most popular with others, and has recruited, in a quiet way, a surprising number of operators. The secret was sold from man to man, and the price and enthusiasm rose simultaneously. "State and county rights" to practice it were vended at high rates, reaching in one instance the sum of $3,000. Regular physicians abandoned their practice, and even mortgaged their property for money with which to buy the secret, and set themselves up as itinerants, while ignorant laymen joined in the rush until they filled the whole West with their clamor, and at last whitened the sands of the Pacific shores with their hand-bills.

The chief managers of the business settle in the larger towns in the winter, where they advertise and practice, but as spring advances to the time when the wild-geese begin to fly, they feel the migratory instinct, and go from place to place, selling the secret to all who will buy it, and operating meanwhile on the people of the farms and villages. In this way they have treated more than ten thousand patients in the States west of the Allegheny Mountains. A secret so extensively sold always gets out. Three years ago I discovered and published it, thus putting a check on the business of selling, and induced large numbers of the regular profession to try the plan among their patients. These physicians have furnished me my best information, but I also opened communication with the principal itinerants themselves, and induced several of them to come out frankly and tell what they knew, and, by checking one statement against another, was able to sift out pretty well the few attempts at deception.

Mitchell's original plans have excited widely extended thought and experimentation among his followers, so that his two methods have branched out into numerous varieties. The original injection seems to have consisted of equal parts of crystallized carbolic acid and olive oil. The operator exposes the piles to view, and smears the anus with an ointment to prevent smarting in case the fluid should chance to drop; he then takes a sharp-pointed hypodermic syringe, charged with the carbolized liquid, and slowly throws a few drops into one of the piles. The pipe is left in the puncture a few moments to prevent the fluid from running out, and to allow it to become fixed in the tissue. The pile turns white, and in the most successful cases withers away without pain, suppuration, or sloughing. Only one pile is treated at a time, and about a week is allowed between the sessions, until all are cured. The itinerants often advertise their methods as "painless," but as a matter of fact only about one patient in four gets anything like exemption from pain. Most of them suffer a sharp, temporary smarting, and a few have a terrible and prolonged agony. The majority are cured, however, without interrupting their business.

The original plan has sprouted into numerous varieties. Instead of using olive oil as the excipient, many use glycerine. Then every operator has his favorite degree of strength. Several claim that the stronger the fluid the better it is, and actually inject crystals of carbolic acid melted by heat, while others use mixtures varying in strength all the way down the scale, until we find Dr. Weir, of New York, experimenting with one part of acid to twenty or thirty parts of the solvent. The dose injected varies in like manner. Some advocate great caution, and only put in from one to three drops, while others cram the pile with a syringe full, and seek to make it suppurate or slough. I find two men using creosote instead of carbolic acid, and several add anodynes, such as morphine, chloral, or iodoform. Ergotine is also a favorite injection, and a great number of mixed formulæ have been imparted to me, some of them containing five or six ingredients. Mr. Colles, of Dublin, injects muriated tincture of iron. Dr. Hill, of Bloomington, Ill., and Dr. Drake, of Hastings, Mich., use the iron persulphate, while others have tried tannin, chromic acid, tincture of iodine, etc. One itinerant, who writes in a straightforward, manly tone, says that he has experimented on almost every coagulating agent in the vegetable and mineral kingdoms. His preference is for the strongest carbolic acid. He adds the following remarks: "The difficulty with all remedies, except carbolic acid, is the suppuration being limited to a small portion of the tumor, or, like the preparations of iron, causing it to swell and become very painful. Carbolic acid is, so to speak, used up in cooking the blood throughout the entire tumor. The appearance of the pile, in from five to twenty seconds, shows such to be the fact. Suppuration takes place in three or four days, with sloughing. No danger of hemorrhage."

The results of these various methods of treatment may be summed up as follows: In the first place the needle operation has never become a favorite. I can learn of only five persons who make much use of it. The following case was probably treated in that way. The patient, a plethoric man of forty-five years, went to a quack in Chicago, and, as the result, a varicose hemorrhoidal vein was widely opened. He says the blood gushed out freely, but after some trouble was arrested through the applications of means not clearly understood by him. He then returned home in great agony, sent for his family physician, who in turn called me in council. The family physician took off sundry cloths and compresses, and found a large opening in a vein plugged with a vial cork. The quack, I presume, tore open the thin walls of a dilated vein, and being driven to his wits' end by the gush of blood, finally concluded to cork up his patient like a demijohn.

My informants agree that the injection method seldom fails to cure the disease, but they report some serious disasters. The writers know of about 3,304 cases treated in their vicinities by these methods, and though they can not always give exact numbers and details, yet the circumstances are such that a case of rapid death from the treatment could not be concealed, though minor troubles, such as pain, sloughing, etc., might frequently escape their notice. It is probable, therefore, that the list of deaths is pretty complete, while the figures, giving the minor accidents, are too small.

LIST OF ACCIDENTS.

Deaths	9
Embolism of the liver (suspected)	8
Very dangerous hemorrhage	5
Less dangerous hemorrhage	5
Carbolic acid poisoning (recovered)	1
Sloughing (generally but not always confined to the piles)	23
Abscess (of the liver)	1
Severe inflammation	10
Violent pain	83
Stricture of the rectum	2
Permanent impotence	1
Long sickness (2 weeks to 6 months)	6
Relapsed	7
Failed of cure of piles	11
Sundry other accidents	12
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Cases of sloughing and suppuration of the piles are innumerable. Some itinerants use strong injections with the express purpose of producing these results, deeming that the plan of causing them to atrophy without suppuration, lacks certainty and permanence.

The list shows that while the deaths are so few that the risk is no greater than in other modes of treatment, yet the minor accidents are very numerous. The imperfection of the reports renders a thorough study of the accidents impossible, but the following information has been gleaned. One of the deaths was caused by inflammation followed by immense abscesses, erysipelas, and pyæmia. The patient died on the fifth day.

Another death apparently resulted from embolism of the liver. That viscus nearly ceased its function; the stools were light-colored and scanty, the skin yellow, and all the lymphatic glands of the groin, axillæ, and neck became enlarged. A full dose of calomel always brought temporary improvement, but no permanent benefit. The patient lingered along, and died unrelieved, about one hundred days after the operation. The next fatal case was that of a man eighty-four years of age. The person who injected the pile, said it was "very large and very deeply seated." It was suspected that he mistook the enlarged prostate for a hemorrhoid. Be that as it may, the patient was attacked with violent pain and retention of urine, and, though relieved by the catheter, died the third day. There is no proof, however, that the prostate was injected, nor that it would be fatal if it were.

The fourth death was also attributed to injecting the prostate, but no symptoms are given.

The five remaining deaths are so vaguely reported, that I am unable to give any particulars about them. It is possible that three of the reports refer to the same patient, and ought to be counted as one, in which case the whole number of deaths is only seven. This number of fatal results in three thousand three hundred cases, treated often in the most reckless and ignorant manner, is certainly not large, and tends to show that the injection method is as safe as any other, so far as life is concerned.

The same relative immunity appears respecting hemorrhage. Five dangerous cases of it are reported, but in most, if not all of them, it occurred from the fool-hardy practice of allowing the patient to take long rides and walks when he should have been in bed; but even with all this imprudence the hemorrhagic cases are fewer than occur after the use of the clamp and the ligature. Allingham reports more instances of hemorrhage after his favorite operation, the ligature, than I can find among all these cases of injection.

The chief objection of the profession to this operation has been the fear of embolism. The two lower pairs of hemorrhoidal veins send their blood by the route of the internal iliacs to the heart, but they are small, while the upper pair is much larger, and carries the great mass of the blood of the hemorrhoidal plexus to the liver, hence we should expect that embolism, if it occurred at all, would be of the latter organ. The facts agree with the indications of the anatomy, for not a single case is reported of a sudden death, such as would proceed from clots swept to the heart and lungs, but there are eight instances of suspected embolism of the liver; only one of them died, and there was no post-mortem examination, so that possible proof is wanting.

The first is the fatal case of liver trouble already described. The second was marked by an abscess of the liver, but the patient recovered. In the third case the patient was attacked one hour after the injection with severe pain in the liver. After some time the pain was relieved, and no further trouble followed, but the physician feared to repeat the injection.

In the remaining cases it is simply reported to me that the patients, after operation, were attacked with disease of the liver, but did not die; no particulars were given. It is probable that in a portion of the cases the liver disease pre-existed, and was the cause of the piles and not the consequence of the operation. On the whole, there does not appear to be any decided danger of embolism, if the case is carefully handled. I may mention here, that Dr. Whitmire, of Metamora, Ill., practices tamponing the upper part of the rectum for twenty-four hours, to prevent any emboli from moving in that direction.

Sloughing and suppuration of the piles generally follows large and concentrated injections, but not the small and dilute ones. A few cases only of extensive abscesses have occurred.

The most frequent of all accidents is the occurrence of severe pain. The verge of the anus is extremely sensitive, and injections put in near that circle are liable to produce fearful distress, but above the verge, the sensibibility rapidly diminishes, so that much less suffering is entailed by the injection of internal piles. In about one-fourth of the patients the pain is very slight. Dr. Weir, of New York, injected two series of patients, one with strong, and the other with weak carbolized solutions, using in the latter only one part of carbolic acid to ten, twenty, or thirty of the excipient. He found that the pain and the abscesses followed the use of the strong injections, but were escaped when weaker ones were employed.

The remaining accidents in the list are not peculiar to this operation, nor greater in number than occur in other methods. The operation was a new one, and its conditions of safety were unknown. When we consider that many of the operators were ignorant blockheads, with no qualifications for the business except a bottle of carbolic acid and a hypodermic syringe, and with no idea of efficiency but to distend the hemorrhoidal plexus, with all the liquid caustic they could get into it, we shall not be surprised at discovering a few deaths and a number of minor accidents. Had the method itself not been an unusually safe one, they would certainly have slaughtered their scores of victims, for the difference is world-wide between their ignorant injecting, and cautious, scientific surgery. If the following rules be observed, I believe that the method of treatment by hypodermic injection will be less painful than any other, and equally safe.

1. Inject only internal piles.

2. Use diluted forms of the remedy at first and stronger ones only when these fail.

3. Treat one pile at a time, and allow from four to ten days between the operations.

4. Inject from one to six drops, having smeared the membranes with cosmoline to guard against dripping. Inject very slowly and keep the pipe in place a few moments to allow the fluid to become fixed in the tissues.

5. Confine the patient to bed the first day, and also subsequently if any severe symptoms appear. Prohibit any but very moderate exercise during the treatment.

Under all treatments, as well as when left without treatment, piles are subject to possible hemorrhage. Allingham gives the following method of applying the tampon where the bleeding vessel can not be found promptly, and controlled by other means: He takes a good-sized sponge and fastens a strong, double string through its center. (He prefers a bell-shaped sponge, inserted with the open end downward.) Having pushed the sponge up the rectum some inches beyond the bleeding point, he fills the parts below with cotton dusted with powdered alum or persulphate of iron, and ties a stick across the finished tampon with the double string. By turning the stick like the handle of a gimlet, he twists and tightens the string, forcing the tampon firmly up against the sponge and causing it to spread laterally and compress the bleeding vessels. He advises the insertion of a large catheter with the tampon to give exit to the flatus. By the help of opiates the tampon is often tolerated several days.

My final conclusion is, that the wild itinerants of the prairies have really made a valuable contribution to scientific knowledge, and that the cautious injection of hemorrhoids with carbolized solution will remain as one of the permanent operations of surgery.—*Medical Quarterly and Examiner.*

The Plague.

Prof. Virchow recently delivered a lecture on the plague before the Berlin Medical Society (*Berliner Klin. Wochenschrift*, No. 9, 1879), which deserves special attention, and of the principal points of which the following is an abstract:

Virchow began by stating that our knowledge of the plague in the light of modern medical science is practically *nil*. The latest and most copious reports on the subject date from the great epidemic in Egypt, and from the Commission of which Bulard, Clot-Bey, and others were members. "The clinical and anatomical methods which the Commissioners used in their investigation were not indeed unsuitable; but they were so imperfect that we are still in doubt what the state of things in Egypt really was." Hence Virchow blames the European Governments, and especially the Russian, for not sending properly qualified men to the places where plague was said to be prevalent, to examine the disease with modern appliances, and in harmony with modern knowledge. The universities of Kazan and Kharkov could have furnished thoroughly trained observers; whereas, in fact-unknown men have been selected for the work. Pass, ing to the plague itself, Virchow points out that we do not even now know whether the buboes so constantly spoken of as a symptom are an integral part of the disease, or whether the very acute forms of plague can occur without them. This, he says, is one of the most doubtful questions, and one on which the old observers were not agreed. Another question is: What is the nature of the change in the lymphatic glands on which the buboes depend? Is it a cellular hyperplasia, or an hyperæmia? May hyperæmia be combined with hemorrhagic effusions into the gland-substance? In fact, is it not probable that in the plague-bubo all the changes occur which we now know to be associated with all acute glandular swellings of whatever kind? Virchow inclines to answer this last question in the affirmative.

We are also in the dark as to why the plague-bubo ulcerates. The best observers of this condition assert that the suppuration begins at the outside of the lymphatic gland, but it is difficult to find an analogous change in the ordinary acute febrile diseases of Europe. It is only rarely that in typhoid fever the mesenteric glands suppurate; but then the suppuration, says Virchow, is within the gland, and the process is identical with the formation of a typhoid ulcer in the bowel. Occasionally suppurating inguinal buboes occur in typhoid fever; but in exanthematic typhus Virchow has never met with them. If we knew that the suppuration originated in typhoid fever and in plague in the same way, we should be justified in assuming some relationship between the two diseases. At present there is a gap in our knowledge which needs to be filled up. Still, in spite of our ignorance on this point, Virchow confesses that he regards the buboes as the most important diagnostic signs of plague. They are present in the great majority of all the cases.

Next to them come the "carbuncles," which are found in about one-fifth of the cases, and which closely resemble those of malignant pustule (*Milzbrand*). Virchow has failed to convince himself that they ever occur in the internal organs. Petechiæ, or rather large ecchymoses, are common in the skin, and still more so in internal organs. These three phenomena—buboes, carbuncles, and petechiæ—are the most prominent symptoms of the plague, in company with severe fever of rapid onset, and soon involving the nervous system. Swelling of the spleen is a less characteristic, but appears to be a very constant, symptom; and the pathological alteration is probably similar to that occurring in other infectious diseases. Swelling of the liver and kidneys is also described, and may probably be referred to acute parenchymatous degeneration.

In spite of the fact, already mentioned, that buboes are never found in exanthematous typhus, Virchow points out that in the beginning of every epidemic of plague the medical men declare the disease to be typhus. This was the case recently when plague appeared in Kurdistan and Mesopotamia. The Turkish doctors diagnosed typhus; and it was not until Dr. Tholozan, the Shah's physician, took up the matter, that the truth came out. And this brings us to the origin of the epidemic in Astrakhan and on the borders of the Caspian Sea. Some authorities, and chief among them Prof. Hirsch, of Berlin, believe that the plague was somehow imported from India, where two forms of it have been met with within living memory:

the first called "Palipest," which spread from Cutch and Gujerat in the Northwestern Provinces south of the Indus into the interior, and which disappeared for the last time in 1838; and the second, an endemic plague, first described by Allan Webb, and which is limited at the present day, according to recent report of Dr. Lewis, to two small districts in the Himalayas, not far below the snow line on the borders of Nepaul.

Professor Virchow therefore assumes—and the argument appears conclusive—that the present Eastern plague can not be the Palipest, which was long ago extinct, nor the endemic plague of North India, which has never been known to break its barriers. His own theory is, that the modern plague has come from Kurdistan and Mesopotamia *via* Persia, and has thence reached the Caspian Sea. Whether its transmission has been due to the movement of troops in the late war can not, he thinks, be at present decided.

And is what has been called the plague really the plague after all? Professor Virchow thinks that, if the reports of suppurating buboes are correct, it is, though the extent of the epidemic has probably been exaggerated. In any case he considers that his own Government was perfectly right to take all precautions possible against the introduction of the plague into Germany. He doubts, however, the possibility of protecting a long *land* frontier by any system of quarantine based on passes and bills of health. "If the Russian officials," he says, "were angels, it might be done; but they are men, and hence fallible." Virchow refers, *en passant*, to the way in which the province of Bari, in the kingdom of Naples, was protected by quarantine in 1815 against the plague, which had attacked the Noya, one of the last places in Europe which suffered from it. Cordons of troops were drawn round the town at widening intervals, and the sentinels had orders to shoot any person who, after a single warning, tried to break through. The historian Schonberg, who relates the story, says the shooting had "a very salutary effect;" and Virchow states his own opinion to be that "border quarantine (*Grenzsperre*) is an illusion unless shooting is allowed."

The practical measures he suggests are—first, to determine whether the returning Russian army is or is not plague-free; and, secondly, in case the plague should reach Germany, to put in force the sanitary measures common to all epidemics, and, while allowing full communication between country and country, to isolate and treat all patients as rapidly as possible. Remembering that the plague has certain analogies to malignant pustule (*Milzbrand*), and that the skin and hair of a diseased beast can retain their infectious power for months, Professor Virchow refuses to admit that clothes, bedding, and such like, may not convey the contagion of plague in a similar way. The analogy of malignant pustule to plague, it should be added, he considers so strong that he regards "it as very possible that an organism may be discovered by which the disease is conveyed," though "the search for it has scarcely begun." Lastly, Professor Virchow says a word on disinfection, and, in opposition to Professor Pettenkofer, who has advised the German Government to rely on sulphurous acid, he recommends that all clothes, linen, wool, rags, etc., shall be subjected to the dry heat of a proper oven, and he recalls Bulard's assertion that *the immersion of infected objects in water* for a few hours destroys the contagion of the plague entirely. On the whole, the impression which Virchow's lecture leaves on our mind is, that there is no great need for apprehending an epidemic of plague in Western Europe. At any rate it is clear that anything like panic is foolish, and Professor Botkin's recent error in diagnosing syphilis as plague at St. Petersburg, should warn medical men to keep their heads cool, and not let their fears get the better of their judgment. Professor Virchow will not have spoken in vain if he helps to tranquilize the European public.—*Medical Times and Gazette*, March 15, 1879.

Dyspepsia from Constipation.

BY JOSEPH L. BAUER, M. D.

Much has been written upon a disease which is supposed to linger within the stomachs of at least one half of the native population of America. Indeed, the more that is said the less is accomplished for its relief or alleviation. Its insidiousness is the more to be feared on account of its varied complications of a dangerous character. I mean dyspepsia, indigestion, etc., etc. Of late I have had several opportunities of testing the merits of the old and new ideas of its treatment, only to find that I have grappled in vain. I write this short note in order to call forth some discussion, and to recite my ideas as to its causation and its consequent treatment. Although I do not claim any originality in the proposition, still, I have doubted its propriety time and again until at last fully convinced of its truth. If I am not mistaken, Professor Louis Bauer, of your city, is one of its firm advocates, and his results alone are consistent arguments in its favor.

I will relate a case of the disease which I have lately attended, and state my reasons for its treatment:

H. L., a farmer, aged forty-five years, has been sick eight years. Previous to his sickness he suffered from constipation, which was generally relieved by aperients. During his illness he has made a trip to Europe, in order to partake of some of its mineral waters and to consult with some prominent physicians; but he derived no benefit from them. He has consulted physicians in his vicinity whenever he required it, but nothing had the desired effect. His last physician consigned him to the incurable list.

When I was called, the following presented itself: Upon entering the room the temperature was unbearable, and the patient in a profuse perspiration; I requested the opening of doors and windows in order to have a little fresh air, but the patient remarked that he was always very chilly without a large fire; I insisted upon it and proceeded with the examination: Tongue coated and dry, with fiery edges; skin pale and sallow; perspiration clammy and odorous; pulse weak and rapid; urine scanty and high-colored; bowels constipated sometimes for four days; appetite moderate, with pain and fullness after eating. Liver and spleen were normal, but the stomach and intestines were distended with gas and very painful. He, of course, had frequent bitter, gaseous eructations, and presented a good picture of hypochondria.

It will be seen that I had a genuine case of dyspepsia to deal with, so pronounced by all of his physicians and myself. I immediately prescribed for him light diet, fresh air and healthful exercise; also a combination of quinine, herb belladonna, bismuth and lactopeptine. This availed nothing, as all the other *et ceteras* prescribed for this disease that were at hand. Acting upon the new theory, as suggested above, I prescribed a pill composed of ext. hyoscyamus, ext. colocynth comp., ext. aloes aquos. and Rochelle salts as an aperient, and gave the following medicine additionally:

℞	Bismuth subnitr. - - -	ʒss;
	Tinct. nucis vomicæ - -	ʒii;
	" belladonnæ - - -	ʒiss;
	Syr. rhei. arom. - - -	℥i;
	Aquæ. destil. - - - -	℥iiss;

Misce. ft. mistura.

Sig. A teaspoonful three times daily.

Under this treatment, my patient improved rapidly, and three months having elapsed since his recovery, finds him enjoying good health.

Dyspepsia has usually been recognized as an independent disease, with a pathology peculiar to itself; thus it has been treated from time immemorial. Now, I think that it is a secondary condition, dependent upon obstinate constipation of the bowels. In this case, we have the previous history of constipation of the primary cause, and in whatever way the constipation may have been produced, his symptoms followed in logical order. In these cases of constipation, we have, in the first place, fæcal decomposition generating irritating ammoniacal gases; second, intestinal distension; third, paralysis of the intestinal muscles; fourth, cessation of peristaltic action; fifth, the passage upward of the gases into the stomach, producing irritation and erosion of the mucous membrane of that viscus.

Upon this hypothesis, I based my treatment and find that my results at least give some evidence of its truth. If I have reasoned incorrectly, I hope some experienced practitioners will take up the subject and test the truth of my suppositions. In this connection, I would state that the pills in question were made by Parke, Davis & Co., of Detroit, and have proven very effective. Their process of sugar-coating prevents the mass from getting dry and indigestible.—*St. Louis Clinical Record.*

Mysophobia.

Dr. W. A. Hammond read a paper upon the above subject, in which he described a form of mental derangement that consisted in a *fear of defilement or contamination.* Ten cases had fallen under his observation, but not fully recognizing the exact nature of the earlier ones, he based his paper upon the complete clinical histories of the last three. In the first case described there was an overpowering desire to wash the hands, and in that occupation the patient spent a large share of her time. The fear of becoming contaminated gave her the most intense mental anxiety, suffering and distress; and although she was able to recognize the absurdity in her case, yet during her waking hours she was haunted and followed by what was to her a most terrible distressing fear.

In the second case the fear of pollution was more extended and serious, and the patient washed her hands as many as two hundred times a day.

The third case was equally well defined, but not so severe. When the patient visited the doctor's office she could not be induced to touch the door-knob when she was ready to leave the consultation-room, because of the tormenting and distressing fear of becoming contaminated, which held her in its complete possession. The treatment which he had exhibited had been to keep the bowels quite soluble by means of pills composed of podophyllin, aloes, and ox-gall; to administer bromide of potassium, sodium, or calcium, and in combination with opium if there was a tendency to melancholia; and to use tonics—such as cod-liver oil, strychnia, iron, and quinine.

Dr. E. C. Seguin referred to a case in which the patient suffered through fear of croton bugs. The fear followed her, and she saw the bugs when it was well established that there were none present. She was cured by moral treatment and by tonics.

Dr. Spitzka spoke of phobia as a symptom which complicated different conditions, and

Dr. Kiernan mentioned cases of chronic mania in which he had seen similar symptoms.

Dr. Hammond remarked that the cases which he had reported, and to which he referred, were not cases of insanity, for they had neither hallucinations nor delusions.

The Society then went into executive session.

MICROSCOPY.

Royal Microscopical Society of London.

UNDER the above heading the *Journal de Micrographie*, of Paris, publishes a report, from which the following extracts are translated and condensed:

A meeting of the Royal Microscopical Society of London was held on the 12th of February, for the annual election of the President, officers and council.

It is usual for the President of the R. M. S. to remain in office two years, but the President of last year, M. Slack, did not offer himself for re-election. Why, indeed, was he ever made President? I can not say. Surely England possesses many eminent men certainly worthier and more capable of filling such a position. It was a singular business. * * *

In the month of February, 1878, M. Slack, who had been Secretary during many years, was elected President. It had been held by many persons that his influence had not been favorable to the interests of the society.

* * * He was elected only by a majority, and not unanimously, as is usual. It is even said that if his adversaries abstained from active opposition by not publicly protesting against his nomination, it was out of respect for the society, and to avoid the scandal of a contest; and so he was elected.

It should be known that when the monthly microscopical journal ceased to appear, at the end of 1877, the editor, Dr. Lawson, being dead, and the publishers, Hardwick & Bogue, not caring to continue their responsibility, the council of the society discussed the question of the publication of the transactions by the society. It had long been desired by many Fellows that the society should adopt this course; the opportunity was favorable, and it was decided upon.

A publication committee was chosen from the officers, and council charged with the business of selecting and classifying the articles that should be published in the journal.

M. Slack was the chairman of this committee. And so, in the month of March, 1878, appeared the first number of the journal of the Royal Microscopical Society. The second number was to appear in May.

Some disagreements appear to have arisen in connection with the editing of the second number, M. Slack, thinking himself privileged to act without the direct assent of his colleagues ; the upshot being that M. Frank Crisp (Junior Secretary) thought right to summon a special meeting of the Publication Committee, at which M. Slack did not attend. The special meeting decided on energetic action, and thus provoked M. Slack, who seeing his petty omnipotence set aside, and himself reduced to the position of a mere voter on the committee, felt the tempest of pride rage in his Olympian cranium.

M. Crisp had to bear the brunt of M. Slack's ire, but after some stormy scenes, a sort of truce was proclaimed. Nevertheless, the matter made a noise in the society, for it was impossible to keep it secret. It got discussed among the Fellows, who generally blamed M. Slack's conduct as being by no means respectful to the active members of the committee; and it is more than probable if the matter had been brought before a special general meeting, the discussion would have ended in a request addressed to M. Slack that he should resign. But certain members of the council desiring peace at any price used their influence to prevent such an *expose*, and M. Slack consented to put in writing that he had no further subject of dispute with M. Crisp, and thus matters remained.

It is said that M. Slack ceased attending the council meetings, and that later on, when he found he had not the slightest chance of being elected for the second year, he made a convenient pretext to announce that he would not offer himself again as a candidate for the presidency. In doing so, he acted prudently ; he saved the society the scandal of a contest and himself the humiliation of a certain defeat.

On the 12th of February, M. Slack, on vacating the chair, seized the occasion to read a statement, justifying himself, and explaining the motives that induced him to withdraw from the presidency. He launched into a violent attack on Dr. Millar, M. Stephenson, and, above all, on M. Crisp. If the audience had known what he was aiming at, they would not have listened to his statement, but taken by surprise—knowing not what was coming out of the chaos of emphasis and words—they listened in silence until he attacked M. Crisp. Then arose murmurs; and these gentlemen might have felt themselves to have been insulted by his words had they not had the assurance of the sympathy of the audience. Thus the filth which M. Slack spat in the air fell on himself, for being silly enough to read a few words which were not complimentary to himself, his voice was drowned in applause. His vacating the chair was also greeted with derision.

Before quitting the room M. Slack requested the testimony of M. Reeves (Assistant Secretary) about some petty matters in dispute. Then he asked M. Badcock to give details about the proceedings at certain meetings of council. M. Badcock rose as if with regret, saying he did not wish to say anything to wound any one—nor to embroil the discussion. He then sat down.

The personal question as between M. Crisp and M. Slack is now settled. M. Slack must have seen from his reception, on this occasion, that the feeling of the society is against him. Among the council it is known from another source (Dr. Matthews saying so much on behalf of the council) that on the matter in dispute the votes were two for M. Slack and fourteen for M. Crisp.

Thus happily ended a meeting that might have been more than stormy but for the moderation of the audience. Happily, I say, for all appear glad, and have reason to be so, being rid of M. President Slack. All are glad, save, be it understood, Slack and his faithful Pylades. I mean Piggott. "X. Y. Z."

In the March number of the same journal the following appears under the heading, " Correspondence :

Sir—I have been told that in your journal (which I beg you to believe I never read, for it treats of matters of which I know nothing) one of your correspondents narrated a story of a certain President who gave in his resignation knowing he would not be re-elected. It appears that your gracious correspondent conveyed the impression that said President was something akin to a simpleton; that he had tried to create for himself a sort of "petty omnipotence," and not succeeding therein, he had fully scattered among his colleagues the wrath that foamed in his "Olympian cranium."

I don't know to whom your correspondent alluded, but as this story resembles that of many Presidents, and mine in particular, your readers (and 'tis said you have some) might make interpretations unfavorable to myself, you will not judge ill of me if I furnish you with a few details relative to the case in which I am personally concerned. Even if you do judge ill of me, I don't care.

Well, I, also have been President of a Society (we have many here, and I shan't tell you which), and had been its Secretary for a long time. Not "Junior Secretary," mind you. I don't care a fig for the whole tribe of "Junior Secretaries."

You surely won't ask me why I was elected President? You are not so simple as not to understand that I should never have left my post of Secretary for nothing—never! It was very agreeable being Secretary, and I was fond of the position. My colleagues were good-enough sort of fellows, who let me do as I liked, happy to find in me a man of decision and of intellect. I had some authority, and authority is a good thing; every one likes to possess it (you yourself probably), and clings to it with all his might "to the very end," as they used to say in your country lately, if he can. That's quite natural, is it not?

One fine day they proposed I should quit. Perhaps they wanted a change in the Secretaryship; perhaps they wanted my place for somebody else. Give up my position? Oh, no! unless I gave it up to be President. So they made me President. No more fuss was made about it, nor do I see why any one should bother more about it. It was, after all, due to me in fair acknowledgment of my long services. That is what is termed "paddling one's own canoe" *adroitly*, and there is merit in that. I thus got more authority, and if I took a little more than my share, that only proves my value. At the same time the Society had a clear gain in having a notable President. For I am a notable man, sir—notable in every way—firstly by my weight! I am awfully fat—have an enormous, aye, a monumental belly. Silenus, "that's me!" I am proud of, and well satisfied with my belly. The preponderance in this world is with the belly-potent. I will wager your correspondent is thin. Then I have an Olympian head. I am not bald, sir. I have luxuriant curls flowing on my shoulders; and my hair is not a wig, whatever may have been thought of it. It is not always in good order, because I'm afraid of spoiling it. Now, hair is very useful (I will wager your correspondent is bald). You may not be aware that a single human hair can be distinguished a long, long way off—at an incredible distance, and even farther if one knows how to see, and puts a little willingness into the business. Hair thus serves as a measure of the limits of visibility; and, without doubt, a hairy man distinguishes himself more readily than others, and more readily thrusts himself to the fore.

I have an Olympian head. My face is like the sun; the heat of my surging brains bathes my face in perspiration, and when I wipe it with my colored cotton handkerchief, I might well be likened to Jupiter the Thunderer, veiling his face with clouds so as not to confound poor mortals with his fierce gaze.

And then I am a chatterbox—such a twaddler! Well, it's very good to talk. It matters not what one says so that one talks. That keeps one to the fore also, and makes believe one has ideas. Besides, I have a great facility for seizing upon other's ideas, and demonstrating that their discoveries, however novel, were evident beforehand and proved by the nature of things. Add to this that I am admirably endowed with a wheezy *alto* voice. It has been said my voice resulted from a surgical operation. I beg you not to believe such fudge.

You see, sir, I am a remarkable man physically, and have a right to be pleased with myself? Beyond this, I am talented—really and truly talented. Ask Pylades (my friend). I have made profound researches on the cracks in silica films—a remarkable study. And then they are going to make a head of me in silica films when they are deposited of sufficient thickness. You shall see it if you are then alive.

I have done other work too. I have endeavored to discover the limits of visibility; but on this matter let me recommend my faithful Pylades. He treats of spherical and chromatic aberrations and a mass of queer things, absolutely as though he knew something about them. It is marvelous! In the matter of chromatics, he has invented a new crime—the "chromatic crime." I have never seen that mentioned in any law-book, and I don't know what it means, but Pylades, who has been at the University of Camford or Oxbridge—I don't know which—knows all about it, at least so he says, and that's enough for me. We understand each other very well, we do, especially after a good dinner. Oh, sir! those are jolly times with us! Thus do we console ourselves for the ingratitude of men. For men *are* ungrateful. You may now see that I ought to have shed a luster on the society honored by my Presidency. But somehow that didn't come to pass. Would you believe it? No sooner was I made President than I found myself surrounded by a lot of people who wouldn't be led--not a bit of it! Then I, you know, am hot-tempered, and when I'm in a rage I'm not over-polite; I get confused, and the more I get confused the more I am angered. My colleagues knew this, and amused themselves by provoking me.

Then the Society wanted to publish its own journal. As President and Member of the Publication Committee, I wanted to manage the journal myself. Well, no! the committee got huffy. There were one or two among them--sly, malicious dogs, whom I abominated, for no matter what I said, they wouldn't be angry, they shrugged their shoulders at me. One, above all--he was my horror—aye, even the sight of him made my flesh crisp up. These people thought my "copy" all bosh, and the Society would have thought so to no doubt. They wouldn't let me manage the journal myself, so I threw it up. But I gave them a bit of my mind, and so would you. I must admit I made a failure of it. But, as I've already said, men are unjust.

At the end of the year I was obliged to retire, for I couldn't hold no longer. I knew I shouldn't be re-elected; that was as clear as the moon. When one doesn't care to hold on to the bitter end, one resigns, especially when one can't do otherwise. That's what I did. I profited by my last appearance as President to give my adversaries a bit of my mind, which I did roundly, I assure you. You can imagine it was prudent of me to resign rather than be turned out—prudent to launch my attack whilst I had the right to speak, for later on they would have made me hold my tongue.

Now you know the whole story. As to what your correspondent may have said, I haven't read it, and don't care a button. Let me tell you, I know how much a foot of criticism is worth. I have written criticism myself, for I have been a journalist, and I laugh at it. As to those who doubt my talents, I pity them.

I am none the less, sir, truly yours.

"SILENUS."

The Aperture Question.

BY J. MAYALL, JUN., F. R. M. S.

Read before the Royal Microscopical Society, and communicated to the Medical News.

The question of the existence of apertures, by means of the immersion system, greater than correspond to the maximum possible for dry lenses, has received such powerful support in the affirmative from Zeiss' new oil lenses, that it is almost superfluous to call attention to the position of the discussion. But as the chief exponent of the adverse view still maintains that it is an "undecided question," I will briefly state the most obvious points that occur to me.

It had been asserted by Mr. Wenham that 82° in the body of the front lens is the *limit* beyond which no object-glass can collect image-forming rays. I quote a passage from his writings to show that he has clearly pledged himself that this limit obtains equally in dry and immersion lenses on balsamed objects:

"........the immersion lens .... had no property for collecting from balsam-mounted object a greater number of rays, but that the limit is the same as in the dry lens."

Many passages might be cited conveying the same view.

This is equivalent to asserting the existence of a *natural limit*, depending on twice the critical angle (from glass to air), and, consequently, the impossibility of any objective collecting to a focus a pencil of rays from a radiant in balsam of greater aperture than that which in this medium corresponds to 180° in air. It was to this assertion as regards the *limit* in relation to immersion lenses that exception was taken.

On this question Prof. Stokes was urged by me to give a demonstration, and I think it must be admitted that the assertion is thereby refuted as a question of theory. Mr. Wenham admits the validity of the reasoning, but insists that in practical constructions the *limit* of 82° obtains.

Mr. Wenham's views had been brought to definite issue by his published report of his measurement of the aperture of Tolles' 1-6 immersion lens (owned by Mr. Crisp). The constructor had alleged the lens to be made on a formula by which an aperture was obtained, measured in the body of the front lens (or in a suitable adjusted semicylinder—for it is demonstrated that the results are equivalent), 16° beyond the maximum possible for dry lenses, that is to say, Mr. Tolles claimed for it an aperture in glass of 98°.

Mr. Wenham reported the aperture to be 68° in glass.

The point of interest to me was to prove whether the aperture exceeded 82°.

Passing over some discussions that took place in correspondence, which were not communications to the society, I may state that I felt under an obligation to place before the society the evidence I could adduce on behalf of the original claim that the aperture of the 1-6 exceeded 82°, the evidence being Prof. Keith's computation of the angle, and the actual measurement by means of Prof. Abbe's apertometer which I exhibited at the meeting in June last.

Mr. Wenham's answer to the computation amounts to this: because the computed angle is based on the assumption that the radiant is in balsam, therefore it falls to the ground.

Now the question with regard to this lens never was to know if the aperture in the body of the front lens could exceed 82° when adjusted so as to have a front-focus in air. No one had ever alleged such a proposition. All admit that 82° (in glass) is the *limit* for dry lenses, and, of course, all lenses may be regarded as dry if there be a stratum of air between the object and the front lens. The question was, what is the aperture when the lens is adjusted to have a front-focus in balsam? To this Prof. Keith's computation answers by tracing the paths of different rays from the back-focus to the front-focus in balsam, and the result (110°) proves that the formula is designed to produce an aperture greater than corresponds to 180° in air—which was to be demonstrated. Mr. Wenham's criticism upon it is thus seen to be irrelevant.

When the radiant is in balsam, and in immersion contact with the front lens, the critical angle (between glass and air) is no longer a factor in the elements, and can have nothing to do with the aperture, because the rays do not go into air until their emergence at the second surface of the front lens, which is not parallel to the plane front, but deeply curved. With a dry lens, the effective angle of rays from the object in balsam is limited *at the object itself* to 82°—no greater pencil can emerge from the cover-glass. With an emersion lens this limit varies with the immersion medium; with water it is about 126°, with oil the limit depends on the construction of the lens, and may possibly be carried as near to 180° in glass as the present dry lenses approach their limit of 82°. This is a matter for the ingenuity of the opticians.

With regard to the elements furnished for the computation, it is extremely improbable that Mr. Tolles arrived at the precise numerical data by mere guessing; but even in that case, as formerly remarked by Prof. Keith, "the force of the result would have been the same."

In confutation of Mr. Wenham's position in the aperture question, we have had two formulæ for immersions placed before us, by which an aperture in the body of the front lens exceeding the *limit* of dry objectives has been traced to the radiant in balsam: the one relating to the 1-10 (three-system) by Tolles in the collection of the United States Army Medical Museum; the other, to the 1-6 (four-system) referred to above; in each of which Prof. Keith has computed the aperture to be about 110°. We have Prof. Stokes' authority for the validity of these computations.

As to practical measurements: we have the testimony and report of Dr. Woodward, Prof. S. Newcomb, and Prof. Keith on behalf of a four-system 1-5 by Tolles. We have Dr. Woodward's report of the measurement of the 1-10 to which the earlier computation referred; and I exhibited the measurement of the 1-6 before the society, with Prof. Abbe's apertometer. In all these cases apertures were recorded beyond the limit contended for by Mr. Wenham.

I felt bound to exhibit the actual measurement of the 1-6 to which the newer computation referred; at the same time I was provided with twelve other immersion lenses by Tolles, Powell and Lealand, and Zeiss, all of which would have afforded similar proof.

I do not attempt to follow Mr. Wenham in his various suggestions for angle measuring. I have found the results obtained with Prof. Abbe's apertometer confirmed by a modification of Prof. Robinson's plan of measuring (adapted for immersion lenses), and therefore, until Mr. Wenham can show some material error likely to arise from the proper use of the apertometer, I shall continue to regard it as a convenient and reliable appliance.

With regard to the supposed effect of the "outer oblique rays extending to the margin of the field," Prof. Keith's computations refer only to the central pencil—have nothing to do with any appreciable diameter of field. If apertures be measured by means of a small pencil of sunlight from the eye-piece, the diameter of the field at the front focus is almost inappreciable, and, therefore, no question can possibly arise concerning "outer oblique ray;" this has been done in many cases to test the accuracy of the apertometer method.

A Word or Two More About the Nucleus in Blood-Corpuscles.

BY J. EDWARDS SMITH, M. D.

To the Editor of the Cincinnati Medical News :

In the April number of the *Quarterly Microscopical Journal*, I find a short article by its editor, referring to a contribution which lately appeared in the Medical News, relating to observations of mine on the "Nucleus in the Red Blood Corpuscles of Mammalia."

Mr. Hitchcock says that "the appearance of a nucleus when the corpuscles are viewed in this manner (*i. e.*, as described in the News) has long been familiar to observers, and it is safe to assert that no true nucleus can thus be demonstrated."

A word or two about the "appearance of a nucleus" is all that I have to say at this writing.

This "appearance of a nucleus" can only be well seen by the conjoint use of objectives of the highest balsam apertures, with the Beck vertical illuminator as modified by me. The original idea is due to Mr. G. W. Morehouse, to whom I have always given proper credit.

Mr. Morehouse's discovery was announced in his paper read before the Dunkirk Microscopical Society, entitled "Illumination of Objects Under High Powers by Reflected Light." Being myself present at the next meeting of the Society, I displayed several objects, including the Nobert Nineteenth Band, in illustration of Mr. Morehouse's paper. These demonstrations were cordially received by the Society, and the novelty of the method of illumination admitted. The "appearance of the nucleus" was also shown, and record made thereof in the "proceedings" of the Society. The matter was presented to the public through the agency of Dr. C. P. Alling shortly afterward.

If Mr. Hitchcock can show that similar observations were in print prior to the dates already given, let him do so and without delay. It is time that such loose statements were at an end, and that writers confine themselves to facts.

The modified illuminator used, as I have described, allows the observer to use reflected lights at angles near the vertical. The results obtained are thus far in advance of those secured by any other of the methods employed in this kind of illumination.

The structure of the true "nucleus" is a question yet *sub judice.* I simply claim to have shown what had not before been seen under the microscope, Mr. Hitchcock to the contrary notwithstanding.

CLEVELAND, OHIO, *May,* 1879.

BOOK NOTICES.

DEMONSTRATIONS OF ANATOMY: Being a Guide to the Knowledge of the Human Body by Dissection. By George Viner Ellis, Emeritus Professor of Anatomy in University College, London. From the Eighth and Revised English Edition. Illustrated by 249 Engravings on Wood. 8vo. Pp. 716. Philadelphia: Henry C. Lea. Cincinnati: R. Clarke & Co.

The plan of the work is as follows: "In the dissection of a part the attention of the student is directed first to the superficial prominences of bone and muscles, and to the hollows that point out the situation of the subjacent vessels. Next the cutaneous structures, and the different layers of muscles with their appertaining vessels and nerves are examined in succession, so that the several objects between the surface of the body and the bones may be observed in much the same order as they would be met with in a surgical operation. The anatomical description of the part under examination is arranged in conformity with the dissection in regions, and each muscle, bloodvessel, nerve, or other structure, is described only to such an extent as it may be laid bare."

As a dissector, or a work to have in hand and studied while one is engaged in dissecting, we regard it as the very best work extant, which is certainly saying a very great deal. As a text-book to be studied in the dissecting-room, it is superior to any of the works upon anatomy; for, as has been stated, it is arranged for studying the parts as they are brought into view by dissecting. Not an artery or a nerve is taken in hand, and it studied exclusively from its origin to its distribution, as in a work upon anatomy; but after the integuments have been raised in a region, then the student studies muscles, blood-vessels, nerves, lymphatics, glands, etc., of that region, exclusively from outward, downward, until everything belonging to it is dissected away.

This work is very popular in England, as is shown by the fact that there, in a brief period, it has passed through eight editions. We have no doubt but that it will become equally popular in this country. Price, $5.25, in leather.

A Tabular Handbook of Auscultation and Percussion. For Students and Physicians. By Herbert C. Clapp, A. M., M. D. With four Plates. 8vo. Pp. 95. Boston: Houghton, Osgood & Co. Cincinnati: Robert Clarke & Co.

This is a work that every student of medicine ought to have. Though it is small, it is emphatically *multum in parvo.*

It is not necessary for us to enter upon a description of the work. It will suffice to say that it has been gotten up for students, and it is just what they need. An attentive study of it will disclose to the medical student all the mysteries of auscultation and percussion, and make him an adept in physical diagnosis.

Hints on the Obstetric Procedure. By Wm. B. Atkinson, A. M., M. D., Physician to Howard Hospital, Philadelphia. 12mo. Pp. 121. Philadelphia: D. G. Brinton, 115 South Seventh Street. 1879.

This little work has reached a second edition, showing that it has been well received by the profession.

The practitioner will find in it very many excellent hints as regards the management, in labor, of hemorrhage, convulsions, inefficient pains, placenta, false pains, forceps, after-pains, and many other important matters. Easily carried in the pocket, the student can keep it by him and study it whenever he has a leisure moment. We very cheerfully commend it.

On Diseases of the Abdomen, Comprising those of the Stomach and other Parts of the Alimentary Canal, Œsophagus, Cæcum, Intestines, and Peritoneum. By S. O. Habershon, M. D., London. With Illustrations. Second American from the Third Enlarged and Revised English Edition. 8vo. Pp. 554. 1879. Philadelphia: Henry C. Lea. Cincinnati: R. Clarke & Co. Price, $3.50.

The writings of Dr. Habershon are considered of high authority; and while such distinguished physicians as Budd, Handfield Jones, Chambers, Brinton, Wilson, Fox, and a number of others have written upon the diseases which Dr. Habershon makes a specialty of, yet the works of none of them have a higher standing than his.

The design in this work has been to illustrate the diseases treated upon, by cases which have come under the author's personal observations, with a few remarks upon them, and some general deductions. During his curatorship of the Museum at Guy's, and of his demonstratorship of Morbid Anatomy for several years, very numerous opportunities were presented of noticing diseases of the stomach and intestines in their varied phases.

The work contains twenty-one chapters, and we have treated in these digestion and indigestion, the antagonism of disease, the action of remedies modified by the condition of the recipient, diseases of the tongue and mouth, diseases of the pharynx, of the œsophagus, organic diseases of the stomach, functional diseases of the stomach, diseases of the duodenum, muco-enteritis and enteritis, strumous and tubercular disease of the alimentary canal, of the cæcum and appendix cæci, diarrhea, dysentery and catarrhal inflammation of the colon, typhoid disease of the intestine, colic, constipation, organic obstruction, internal strangulation, intussusception and carcinoma of the intestine, suppuration of the abdominal parietes, perforation, etc., intestinal worms, peritonitis, ascites, abdominal tumors.

The reader will find the work a most thorough and complete one; discussing most minutely all the various subjects of which it treats. Of course vastly more information can be had from such a work, in regard to diseases of the alimentary canal, than can possibly be obtained from any work on Practice; and as these diseases form a large part of the diseases which a practitioner is called upon to treat, every physician should feel it his duty to have such a work.

PRACTICAL INSTRUCTION IN ANIMAL MAGNETISM. By J. P. F. Deleuze. Translated by Thomas Hartshorn. Revised edition, with an Appendix of Notes by the translator, with Letters from eminent Physicians and others descriptive of Cases in the United States. 12mo. Pp. 524. Cloth. Price, $2. Sam'l R. Wells & Co., Publishers, New York.

Magnetism is a subject of which we do not know anything about. This work, however, gives full information in regard to it, and if our readers will purchase, they will be able to inform themselves. It is claimed to be applicable in the treatment of many diseases. We have heard eminent medical men assert that it is superior as an anæsthetic.

We quote from the *Phrenological Journal* in regard to the work:

"A careful examination of the volume warrants us in saying that it stands alone among treatises in print as a clear exponent of the practical application of magnetism, written by a French physician of extensive practice and wide knowledge. It is an exceedingly careful and minute account of the modes of procedure to obtain the somnambulistic condition, and for the application of animal magnetism to the treatment of disease.

"In the beginning the author considers the principles of magnetism, and indicates the various processes employed in magnetizing. He next supplies information concerning the auxiliaries by which the force of magnetism may be augmented. Next he treats of somnambulism and the procedure of the somnambulist. Then he discusses the precautions that a patient should take in choosing a magnetizer; further on, the application of magnetism to various diseases and its association with medicine. He does not overlook the dangers of magnetism and how they may be prevented, furnishing suggestions on the method of developing and strengthening the magnetic power in one's self, and what agents would aid in the acquisition. It must be seen by the reader, from this cursory view of the points dwelt upon by the author, that the book is the result of no little reflection as well as experience."

THE TRANSACTIONS OF THE AMERICAN MEDICAL ASSOCIATION. Instituted 1847. Volume XXIX. 8vo. Pp. 900.

This volume was sent us some time ago, but an oversight on the part of the gentleman in whose care it was placed, prevented our receiving it until recently.

This, if not the most valuable, is the largest volume of Transactions that has been issued for a long time; for besides the 900 pages of proceedings and papers, there is bound in it a "Prize Essay" of nearly 300 pages, by John A. Wyeth, M. D., on "The Surgical Anatomy and History of the Common, External, and Internal Carotid Arteries, and the Surgical Anatomy and History of the Innominate and sub-Clavian Arteries," etc.

But this volume is not only a large one, but it is a valuable one, and will bear very favorable comparison with its predecessors. The papers read before the Association, and published in it, are of an unusually high order. Previous to papers being printed in the Transactions, they are now referred to experts who decide upon their fitness for publication. The consequence is that such as can not abide the critical ordeal to which they are subjected, having no originality or real value, are cast aside.

The brief report of the Librarian of the Association is interesting. He adds to it a very large catalogue of all donations made to the library during the year. By means of exchanging the volume of Transactions, the Librarian is enabled to add to the library each year copies of all the medical journals published in this country, transactions of societies, reports of hospitals, boards of health, etc.; also copies of foreign medical journals and transactions of foreign medical bodies.

Much credit is due to Dr. Wm. B. Atkinson, the permanent secretary, and others associated with him, for the handsome style in which this volume is gotten out.

PROPOSED LEGISLATION ON THE ADULTERATION OF FOOD AND MEDICINE. By Edward R. Squibb, of Brooklyn. 12mo. Pp. 57. New York: G. P. Putnam's Sons.

This little work has reached us too late to give an extended notice of it this month. We must defer it to another time. We will merely mention now that it is a draft of a proposed law to prevent the adulteration of food and medicines, and to create a State Board of Health, with explanations and illustrations of the principal points of the law.

EDITORIAL.

St. Louis as a Health Resort.—We do not suppose that the city of St. Louis has ever been presented for a moment to the mind of any one as a superior health resort for those in feeble health. We have no doubt it would provoke a smile with any intelligent physician if the place was mentioned to him in that relation, calling to mind how commonly epidemics prevail there of smallpox, scarlatina, diphtheria, typhus and typhoid fever, and miasmatic fevers generally. In fact, we never hear the place mentioned, that we do not hear at the same time that an epidemic of some kind is prevailing. Notwithstanding this, however, in the last issue of the St. Louis *Courier of Medicine* is a lengthy editorial on "*The Cause of the Low Mortality Rate of St. Louis.*" On first reading this heading we felt very sure that a typographical error had been made, and that the printer had set up "low," when the editor had written "high." We presumed that the editor had felt it to be his duty to call the attention of the St. Louis profession to the large number of deaths taking place in the city, and to endeavor to have them bring their influences to bear upon the Board of Health and other municipal authorities to institute certain sanitary measures that appeared to him would conduce to the health of the city and lessen the uncommonly large mortality; but that the printer, in the heading, had stated the subject to be precisely the opposite of what it was. On glancing over the article, however, very much to our astonishment, we found it starting off with a table exhibiting the *estimated* population of the principal cities of the United States, deaths during the past month, death-rate per 1,000 living for past month and for past year. In this remarkable table, the *estimated* population of St. Louis is set down at 500,000; deaths during the past month (April), 425; death-rate per 1,000 living for past month, 10.88; for past year, 12.00. For New York City the figures are 1,093,171—2,260—26.78—23.42; Philadelphia, 876,118—1,256—18.77—21.57; Chicago, 460,000—533—11.60—16.50; Cincinnati, 280,000—418—19.46—15.81.

Our readers will notice that St. Louis, with an *estimated* population of 500,000, had in April but seven more deaths than Cincinnati, with an *estimated* population of little more than one-half—280,000.

At the request, the editor says, of Dr. R. M. Wyckoff, Secretary of the King's County Medical Society, Brooklyn, N. Y., he proceeds "to give, editorially, the *cause* of the low mortality of the city of St. Louis." He first admits that there has been continued incredulity as to the low death-rate of St. Louis by sanitarians and registrars, so much so that they have refused, in many instances, to publish it. Of course sensible, intelligent people will not give credence to statements so manifestly untrue. Every one who knows anything about St. Louis, knows that the rate per cent. is more than double what it is stated to be. The editor argues that because none but graduates are allowed to practice medicine, and because all physicians are compelled to register under heavy penalties, forsooth, all the deaths must be reported by them to the health officer. It may be owing to our stupidity, but we can not perceive any relation whatever between graduating and registering and the reporting of deaths. Why a registered doctor should be any more liable to report than one who has not registered, is beyond our ken.

In the second place, the editor considers the question, "Is our estimated population much too high?" In reply he says, "By every known means of estimate, except actual count, it is not. The census of 1860 and 1870 gave a relation of total population to the names in the city directory of four and one-half to one. The directory of 1878 gave 120,000 names, which, by the former ratio, would make a present population of 540,000, whereas we have been calling it 500,000."

To estimate the population of a city by multiplying the number of names in a directory by a certain figure is absurd. How many names will be in a directory will depend very largely upon the enterprise of the individual getting it up. One projector of such a work would exhibit probably double the names another would. And then, again, as such a work is published every year, there is felt a necessity each year to enlarge and introduce new features in order to cause patrons to feel a necessity to purchase a new edition; but if multiplying the number of names in the city directory by four and one-half is a correcting mode of ascertaining the population, Cincinnati has a greater population than St. Louis; for its city directory contains more than 120,000. But a more correct method of ascertaining the relative population of different cities, without actually counting their citizens, is by comparing the votes cast at general elections, when there is reason to believe that the interest everywhere is the same. Now the writer in the *Courier* must know, for it has been commented upon so frequently by the newspapers of the two cities, that the number of votes cast at general elections in Cincinnati exceeds that of St. Louis, and also Chicago, by several thousands. Again, the number of school children between certain ages exceeds that of St. Louis, and also that of Chicago. These are facts that can not be gainsayed. And knowing these things to be true, how absurd then to persist in such false statements of mortality. We have before us the *Bulletin of Public Health*, issued by the Surgeon-General U. S. Marine-Hospital Service. It receives its reports from the mortality statisticians of St. Louis, and accordingly announces the mortality of St. Louis, for the week ending May 3, to be eighty-seven with its 500,000 inhabitants, that of Cincinnati, with its 280,000 inhabitants—only one-half as great—to be 100.

There are no advantages mentioned by the editor of the *Courier*, as tending to promote health, possessed by St. Louis, that are not possessed by Cincinnati to a still greater extent. The city rises from the river to a much greater height than St. Louis does, and, therefore, the "surface allows of admirable fall for drainage" to a greater extent. It has also many miles of sewerage, "with sufficient fall for rapid emptying into the river, which, with quick and never failing current, carries from the city front all refuse material." There is a daily average consumption of pure river water not of only 22,000,000 gallons, the amount used at St. Louis, as stated by the *Courier*, but a consumption of over 30,000,000. And is it not a little remarkable that a city of 280.000 inhabitants should use more water than one of 500,000?

All the facts, except that of actual count, show very conclusively that Cincinnati has a larger population than St. Louis. It has never condescended to misrepresent. It has an abiding faith in its strength. Its people are enterprising and prosperous. No city in the world possesses the amount of wealth that it does in proportion to its population. It has more citizens of large means, who have retired from business and are spending their days in the ease which their riches allow of; not a slothful ease, but that which is free from the pressing cares of life, which wear out the body and induce premature death. So far from any of its wealthy citizens permitting themselves to rust out, colleges of music, universities, public libraries, art organizations, etc., etc., show a healthy, intellectual activity, far removed from sloth.

In conclusion, we will reiterate the statement that there are no advantages for maintaining an excellent state of health possessed by any city in the United States that is not possessed in a superior degree by Cincinnati.

LONGVIEW LUNATIC ASYLUM.—Senator Marsh, from Hamilton County, presented to the Senate of the Ohio Legislative Assembly, May 10th, the report of the Senate Committee appointed to investigate the charges against the management of Longview Asylum. The investigation made by the Committee was very thorough and complete, much more so than that of the Estill House Committee, which was a mere star-chamber proceeding, gotten up for the purpose, not of developing facts, but of finding the charges true. The Estill House Committee, therefore, never visited the asylum, but in their room at the Grand Hotel, several miles from the institution, sat with closed doors, refusing admittance to the Trustees, the Superintendent, and all officers. No witnesses were examined but those who had promulgated the charges of cruelty and bad management, such as discharged nurses and other employes. And these were not permitted to be cross-examined. A more shameless investigation was probably never instituted—not even the appearance of fairness was kept up.

The Senate Committee in their report say: "We find the buildings and premises connected with the institution in excellent condition, everything indicating the exercise of care and attention on the part of those in charge of the various departments. The Board of Directors, in the management of the business of the institution, have been economical and judicious, the Superintendent and his assistants have been, and are faithful and attentive in the discharge of their duties, and the attendants, generally, are capable and efficient. The condition of the patients is as favorable as the over-crowded condition of the asylum and the limited number of attendants will permit.

The Committee commend the classification of the patients, which the present Superintendent, Dr. C. A. Miller, devised, and which we described several months ago in the MEDICAL NEWS. They regard it as contributing largely to the favorable condition in which the patients are at present found, and strongly recommend its adoption by the similar institutions throughout the State.

The conscientiousness, intelligence, and high character of the three gentlemen composing the Committee are displayed in the closing paragraph of their report. It shows that, however zealous partisans they may be in politics, and we have no doubt they are incited by a due amount of party zeal, they are capable of rising above party when humanity and the public good require it. Not so, however, with many politicians, and not so, let it be to their shame, with the fellow-members of these gentlemen, belonging to the same party of the Senate. This concluding paragraph caused the rejection of the resolution to have the report and the accompanying evidence printed, so that they are relegated to the archives of the Legislature, there to be without publicity. In fact, quite a breeze was stirred up by the partisan members in the majority, Messrs. Seitz, Forrest, and Carson, especially being loud in their denunciations. The latter gentleman, whose part it seems is to do the small business, said that his objections to reorganization of the humanitarian institutions of the State in order to put the dominant party in power over them, was not because it was an injury to the efficiency of those institutions, but because the Republicans had been given any representation at all on the Boards. "As it is," he said, "there is one Republican on each Board, and it affords opportunity for spying and mischief-making." He would have the Boards wholly Democratic. The districts that sent such a man to the Legislature should now send him to some other place, where persons of his mental endowment are needed to forward such purposes as he is capable of promoting.

The concluding paragraph, so obnoxious to the members of the dominant party of the Senate, is as follows:

"The Committee feel confident a fruitful source of difficulty, as herein before stated, is the want of proper authority, and take this occasion of condemning the practice of reorganizing the charitable institutions of the State for purely political purposes. We believe that such institutions should be kept free, as far as possible, from purely political influences, and that no officer or employe, who is competent and faithful, should be discharged on the account of his political sentiments. The sooner that such institutions are thoroughly and completely divorced from politics the better it will be for all interested, and we believe the full measure of efficiency can not be attained until this is accomplished.

"All of which is respectfully submitted.

"Theodore Marsh,
"J. R. Johnson,
"Geo. W. Wilson,

"Members of Longview Asylum Investigating Committee."

Messrs. Marsh, Johnson, and Wilson deserve the respect of all good men. Such men would always receive our vote, whether they were members of the same party with us or not.

Dextro-Quinine as an Anti-Periodic.—Dr. Dunlap, of Chillicothe, O., in the *Ohio Medical Recorder*, speaks very highly of Dextro-Quinine as an anti-periodic. He says: "Dextro-Quinine requires only the same number of grains to effect the same amount of good, that would have to be present of the sulphate of quinine, to get a corresponding benefit; and it has, indeed, appeared to me to exert more *salutary* effect on old *cachectic* cases of malarial poisoning, than sulphate of quinine."

He has never known of *tinnitus aurium* or *deafness* happening even when the doses were large and frequently repeated. The weakest stomach tolerates it.

It is sold at about one-third the price of quinine.

THE MEDICAL HERALD. Louisville, Ky., is rich in medical journals. There are published there the *Richmond and Louisville Medical Journal*, the *American Medical Bi-Weekly*, the *Medical News*, and now we have a new journal called the *Medical Herald*, Dudley A. Reynolds, M. D., editor.

The new journal has forty-eight pages, double columns, and presents a very neat appearance. The editor claims a paying list of subscribers with the issue of the first number, which is remarkable in the history of medical journalism in this country. The first number contains several valuable original articles and other matter interesting to the physician. It has our best wishes for success.

THE BOARD OF HEALTH RESOLUTIONS.—The following resolutions have been passed by the Philadelphia Board of Health:

Resolved, That hereafter, when death has resulted from a contagious disease, the Board of Health require that the cause shall be mentioned in the published death notice.

Resolved, That the public should avoid unnecessary attendance upon the funerals of those dead from contagious diseases.

Resolved, That among the diseases especially calling for this caution are, scarlet fever, measles, whooping cough, diphtheria, and small-pox or varioloid.

Resolved, That wherever possible, air-tight burial cases be used, and if such can not be obtained, the funeral be strictly private.

RAMOLLISSEMENT ROUGE, producing insanity, is what the Louisville Chancery Court called it on high medical authority, and the court ordered that Professor Edwin S. Gaillard, M. D., be committed to the Asylum for the Insane at Anchorage. He was committed. The papers bewailed the hopeless form of the malady. The attending physician said it must soon prove fatal. Three or four days after the unfortunate gentleman was committed to the asylum, he had so far recovered as to warrant the superintendent to allow Dr. Gaillard to return home. He entered at once upon the discharge of his professional duties, and is now in the full enjoyment of a vigorous intellectual and physical manhood. The rapid and complete recovery from a malady supposed to be incurable brings joy to the friends of Dr. Gaillard, and restores a most vigorous and untiring journalist to a position envied by many.—*Medical Herald.*

ALUM AND IRON MASS, FROM BEDFORD SPRINGS, VIRGINIA.—This Mass is the combined medicinal substances of this wonderful water, condensed in the most convenient form for use and transportation. It is put up in bottles, and in boxes in pill form, which are sent anywhere, postpaid, for 25 cents, 50 cents, or $1, or $1.25 or 2 50 or $5 for half dozen. Each $1 bottle, or box, contains the curative virtue of five gallons of water. This Mass has an established reputation of twenty-six years, and its efficiency is attested by the actual result in many cases.

The medical properties of this standard natural remedy are tonic, alterative, astringent, aperient, solvent, diuretic and anti periodic. The chief constituents are aluminum, iron, magnesium, calcium, sodium, potassium, lithia, ammonium.

This Mass is efficient for throat, stomach, skin, blood, uterine and malarial diseases.

MALTINE.—Have our subscribers made use of maltine as made by Messrs. Reed and Carnrick, of New York, and advertised in the MEDICAL NEWS? It is an extract of malted barley, wheat and oats, more concentrated than the preparation called extract of malt. From what we learn, maltine and extract of malt are largely taking the place of cod-liver oil.

Maltine is highly recommended in cases of general and nervous debility, indigestion, phthisis pulmonalis and chronic lung affections generally. In fact, in all low forms of disease it is often used with great benefit.

Maltine is combined with all the various salts of iron, with quinine, strychnine, hypophosphites, pepsine and pancreatine, cod-liver oil, etc. Thus combined, its tonic properties are often much improved. We would advise our subscribers to make a trial of it.

As an instance of its rapidly extending use by the physicians of Great Britain, we would mention that Reed and Carnrick obtained a cablegram order from London for 3,000 gallons (24,000 pints) of maltine and its compounds; and for a certificate as to its composition and therapeutical value, they would refer to the report of Prof. John Attfield, F. C. S., chemist, who speaks of it in high terms.

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have now an established position throughout the civilized world as important therapeutical agents. A *perfect combination* of the two has long been a desideratum, since they are both of value in the same disorders, while the cases in which one is demanded and the other contra-indicated are exceedingly rare.

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The value of *cod-liver oil* in phthisis is so familiar to the physician that it is needless to dwell upon it. But the value of *phosphorus* is also universally recognized in this disease, especially when complicated with nervous derangements. The *combination* of the two therefore furnishes a more effective form for the administration of cod-liver oil in the great majority of cases in which that remedy is indicated, and one which will at once commend itself to the profession.

A dose of two teaspoonfuls of PHOSPHOROLE contains $\frac{1}{100}$ of a grain of phosphorus. This dose, when given after a meal, is effective, and not very liable to interfere with digestion. *Phosphorus is cumulative in its action, and should be administered with watchful care.* About $\frac{1}{12}$ grain is considered the largest safe dose, and we rarely need go higher than $\frac{1}{20}$ or $\frac{1}{30}$ of a grain. At the very first appearance of the smallest gastric derangement, the exhibition of phosphorus should be stopped.

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Dr. Rabuteau's Elixir is especially adapted to weak persons, whose digestive functions need strengthening or stimulating.

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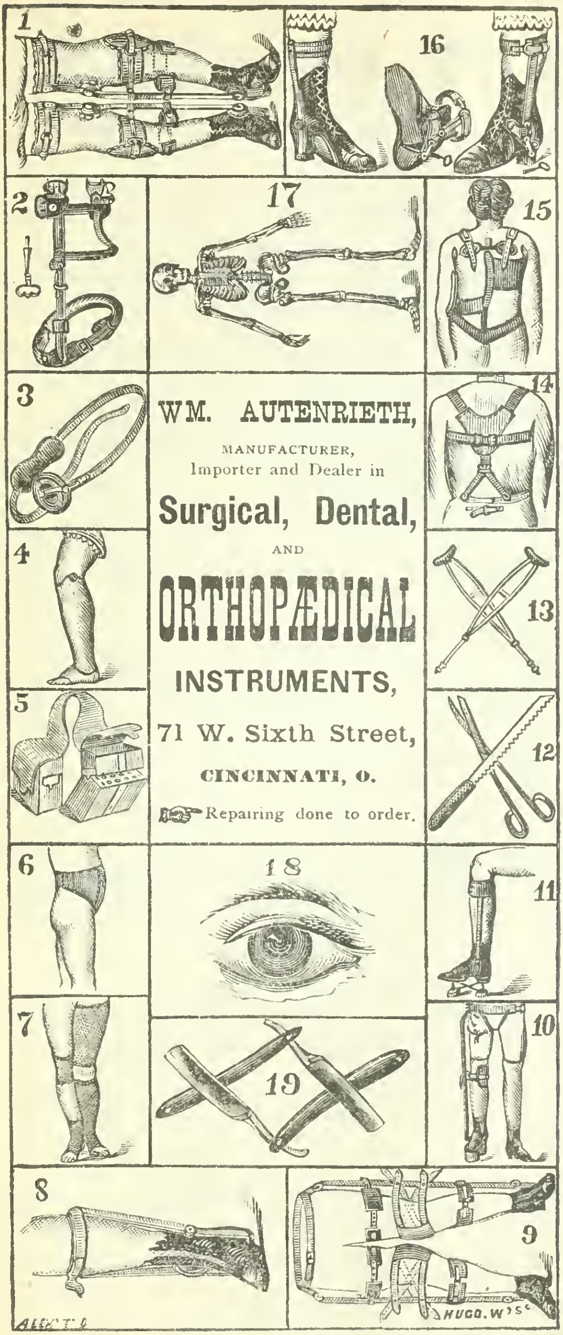

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THE IMPROVED TROMMER'S

EXTRACT OF MALT,

Prepared from the Best Canada Barley Malt by an Improved Process.

Attention is invited to the following Analysis of this Extract, as given by S. H. Douglas, Prof. of Chemistry, University of Michigan, Ann Arbor.

TROMMER EXTRACT OF MALT CO.:

I inclose herewith my analysis of your EXTRACT OF MALT: Malt Sugar (Glucose), 46.1; Dextrine, Hop-bitter, Extractive Matter, 23.6; Albuminous Matter (Diastase), 2.466; Ash (Phosphates), 1.712; Alkalies, .377; Water, 25.7. Total, 99 958.

In comparing the above analysis with that of the Extract of Malt of the German Pharmacopœia, as given by Hagar, that has been so generally received by the profession, I find it to substantially agree with that article.

Yours truly, SILAS H. DOWGLAS,
Professor of Analytical and Applied Chemistry.

This preparation is highly recommended by physicians as an effective agent for the restoration of delicate and exhausted constitutions. It is very nutritious, being rich in both muscle and fat producing materials.

By American and foreign authorities the MALT EXTRACT is extolled in the treatment of impaired, difficult and "irritable" digestion, loss of appetite, sick headache, chronic diarrhea, cough, bronchitis, asthma, consumption, the debility of females and of the aged, in retarded convalescence from exhausting diseases, and all depressing maladies. It is often borne by the stomach when every kind of food is rejected.

In addition to the Extract of Malt with Hops, the attention of physicians is invited to the following combinations:

IMPROVED

Trommer's Extract of Malt,

FERRATED.

Each dose contains four grains of the Pyrophosphate of Iron.

IMPROVED

Trommer's Extract of Malt,

WITH CITRATE OF IRON AND QUINIA.

Each dose contains four grains of the Citrate of Iron and Quinia.

IMPROVED

Trommer's Extract of Malt,

With Cod Liver Oil and Iodide of Iron.

Consisting of equal parts of Extract of Malt and Cod Liver Oil, Iodide of Iron being added in the proportion of one grain to the dose.

IMPROVED

Trommer's Extract of Malt,

WITH COD LIVER OIL.

Consisting of equal parts of Extract of Malt and the best Cod Liver Oil.

IMPROVED

Trommer's Extract of Malt,

With the Iodides of Iron and Manganese.

Each dose contains one grain each of the Iodides of Iron and Manganese.

IMPROVED

Trommer's Extract of Malt,

WITH HYPOPHOSPHITES.

Each dose contains 2 grains Hypophosphite of Lime; 2½ grains Hypophosphite of Soda, and 1 grain each of the Hypophosphites of Potassa and Iron.

IMPROVED

Trommer's Extract of Malt,

WITH ALTERATIVES

Each dose contains the proper proportions of the Iodide of Calcium and Iron, and of the Chlorides and Bromides of Magnesium, Sodium and Potassium.

IMPROVED

Trommer's Extract of Malt,

WITH PEPSIN.

Each dose contains six and one-fourth grains of Pepsin and two and one-eighth minims of Hydrochloric Acid.

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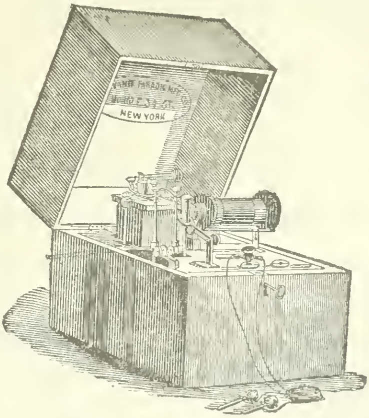

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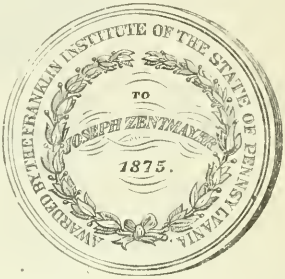
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Sept-1y

TO THE MEDICAL PROFESSION.

MALTINE.

(*EXTRACT OF MALTED BARLEY, WHEAT & OATS.*)

THIS PREPARATION
Contains from three to five times the
Medicinal and Nutritive Elements found in
Extract of Malt.

MALTINE is a highly concentrated extract of malted Barley, Wheat and Oats, containing, undiminished and unimpaired, all the medicinal and nutritious principles found in these cereals. By the most carefully conducted scientific process, we are enabled to offer to the medical profession a perfect article, possessing from three to five times the therapeutic and nutritive merit of any foreign or domestic Extract of Malt.

In support of our claims we invite the attention of the profession to the following points, viz:

FIRST: In the manufacture of MALTINE the evaporation necessary to reduce it to its great density is conducted in vacuo, at a temperature ranging from 100° to 120° Fahr.; while most manufacturers of Extract of Malt resort to "open pan" or low pressure steam boiling, by neither of which processes can the extract be so produced as to preserve the Diastase, Phosphates, and Albuminoids on which its remedial value so greatly depends, and the product is either of a dark color or of low specific gravity, possessing little virtue aside from the saccharine matter which it contains.*

SECOND: Carbon, Hydrogen, Nitrogen, Phosphorus, Sulphur, Iron, Magnesium and Potassium are essential elements in the food of man, and it is only in MALTINE, containing the combined properties of malted Barley, Wheat, and Oats, that all these principles can be found in the proper proportions; Extract of Malt made from Barley alone is wanting in some of the most important of these elements.

THIRD: Gluten is the most nutritious principle found in the cereals, and is the only vegetable substance which will alone support life for any great length of time. It is composed of three distinct nitrogenous principles, together with fatty and inorganic matters, and is analogous to animal fibrin. MALTINE contains twenty times the quantity of Gluten found in any Extract of Malt.

FOURTH: Liebig says, "Wheat and Oats stand first among our list of cereals in combining all the elements in proportions necessary to support animal life. They are especially rich in muscular and fat producing elements." The only reason we use malted Barley in the manufacture of MALTINE is that it contains larger productions of mineral matters (bone producers) and Diastase. It is deficient in all other essential elements.

We believe that any practitioner will readily recognize the superiority of MALTINE, nd would request a trial and comparison of merits with any article offered for similar uses.

---

* As a sure test for Diastase, and the Albuminoids, a small quantity should be put in a test tube or small vial, largely diluted with water, and heated to the boiling point, when the Albumen, if present, will coagulate, and appear in little flocculent particles throughout the liquid. If the extract remains clear, it is proof that it has already been coagulated by excessive heat, and removed by filtration during the process of manufacturing. Any heat which will coagulate Albumen will inevitably destroy the digestive power of Diastase.

(OVER.)

The Nitrogenous constituents of MALTINE have a composition identical with that of the chief constituents of the Blood, and therefore contain nearly every element requisite for the reproduction of the human body.

MALTINE AND ITS COMPOUNDS

Can undoubtedly be used with greater success than any other remedy now known, in cases of general and nervous Debility, Indigestion, imperfect Nutrition and deficient Lactation; Pulmonary affections, such as Phthisis, Coughs, Colds. Hoarseness, Irritation of the Mucous Membranes and difficult expectoration; Cholera Infantum and wasting diseases of children and adults; Convalescence from Fevers, and whenever it is necessary to increase the vital forces and build up the system.

We manufacture the following preparations, the formulas and doses of which are given in our dose books and on the label attached to each bottle:

MALTINE with Hops.

MALTINE, Ferrated:
This combination is specially indicated in Anæmia and Chlorosis, and in all cases of defective nutrition, where Iron is deficient in the system.

MALTINE with Phosphates Iron and Quinia:
A powerful general and nutritive tonic.

MALTINE with Phosphates Iron, Quinia and Strychnia:
A powerful nutritive, general and nervous tonic.

MALTINE with Hypophosphites:
This preparation is specially indicated in Phthisis, Rickets, and deficient Ossification.

MALTINE with Pepsin and Pancreatine:
One of the most efficient combinations in Dyspepsia, Cholera Infantum and all diseases resulting from imperfect nutrition. It contains three of the all-important digestive agents, Diastase being one of the constituents of the MALTINE. We believe there are few cases of Dyspepsia which will not readily yield to the medicinal properties of the above combination, while the system is invigorated by its nutritive qualities.

MALTINE with Beef and Iron:
One of the most valuable combinations in cases of general Debility, when there is deficient nutrition and a deficiency of Iron in the system.

MALTINE with Cod Liver Oil:
The most perfect emulsion, and most agreeable and effective mode of administering this nauseous but valuable Oil yet discovered.

MALTINE with Cod Liver Oil and Phosphorus:
In this combination the Phosphorus has no irritant effect upon the stomach.

MALTINE with Cod Liver Oil and Iodide of Iron:
This is prepared with the tasteless Iodide of Iron, which undergoes no chemical change from contact with the Oil, and does not blacken the teeth.

MALTINE with Alteratives:
In this preparation MALTINE is combined with the most valuable Alteratives known, such as Iodides, Bromides, and Chlorides, and will fully meet the requirements of the practitioners in Syphilis, Scrofula, and all depraved conditions of the blood. Each fluid ounce contains: Chloride Calcium, 10 grains; Chloride Magnesium, 10 grains; Bromide Sodium, 5 grains; Iodide Potassium, 1 grain; Iodide Iron, ¼ grain. Dose: One teaspoonful to one tablespoonful.

We also manufacture a perfectly prepared Extract of Malt from Barley only.

MALTINE preparations are sold at the same prices as Extract of Malt and its combinations, and are put up in amber bottles holding sixteen fluid ounces; each bottle inclosed in a folding paper box.

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PURE COD LIVER OIL

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HYPOPHOSPHITES OF LIME AND SODA

PERFECT, PERMANENT, PALATABLE.

We respectfully ask the Medical Profession to give the above preparation a trial, knowing they will find it just the thing long desired, and obtain splendid results in the wasting diseases indicated by mal-nutrition and assimilation. The *perfect* and *permanent* union of the Cod Liver Oil with the Hypophosphites, and the thorough manner in which the nauseous taste is disguised, renders it so palatable that the most delicate stomach can retain it. The notable advantage it possesses over all other preparations, is its permanency as an emulsion, remaining for an almost unlimited time without the slightest separation or change, which enables the Physician always to prescribe it in its proper proportions. This oil is prepared expressly for us and guaranteed strictly pure. We will gladly furnish, express paid, a 4 oz. sample to any Physician in the country who may not have been supplied.

FORMULA.—50 per cent. of pure Cod Liver Oil, 6 grs. of the Hypophosphite of Lime, and 3 grs. of the Hypophosphite of Soda to a fluid ounce.

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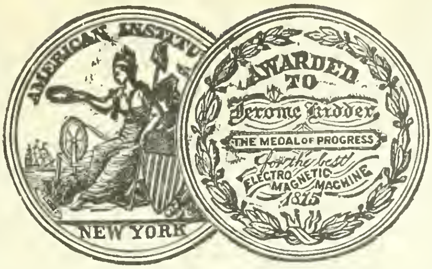

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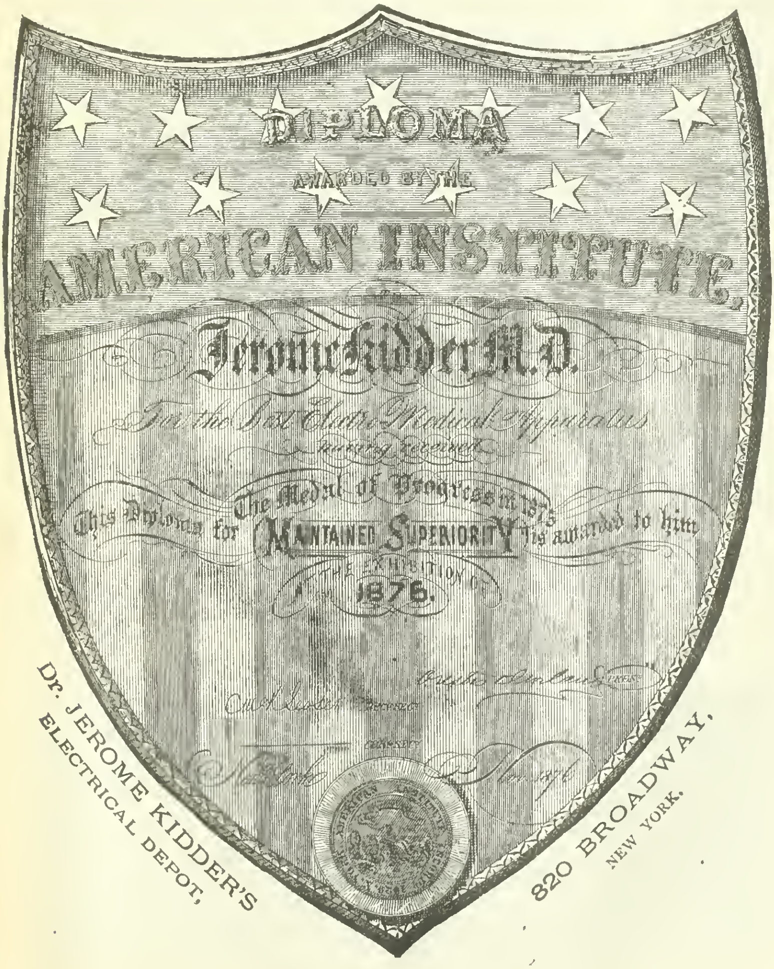

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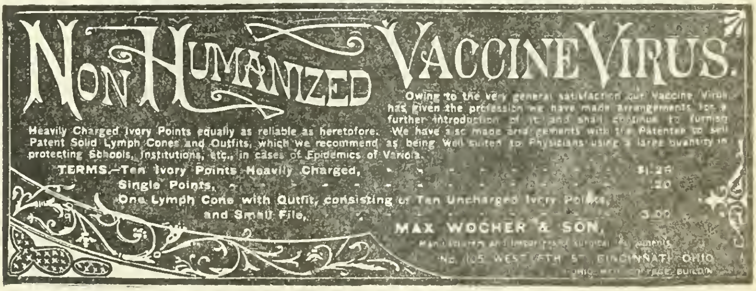

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Single Points, - - - - - - - - - - - - - - .20
One Lymph Cone with Outfit, consisting of Ten Uncharged Ivory Points, and Small File, - - - - - - - - - - 3.00

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10 Ivory Points, Cow-Pox Virus, charged on both sides, -	$1 50
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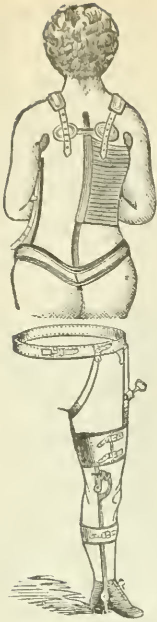

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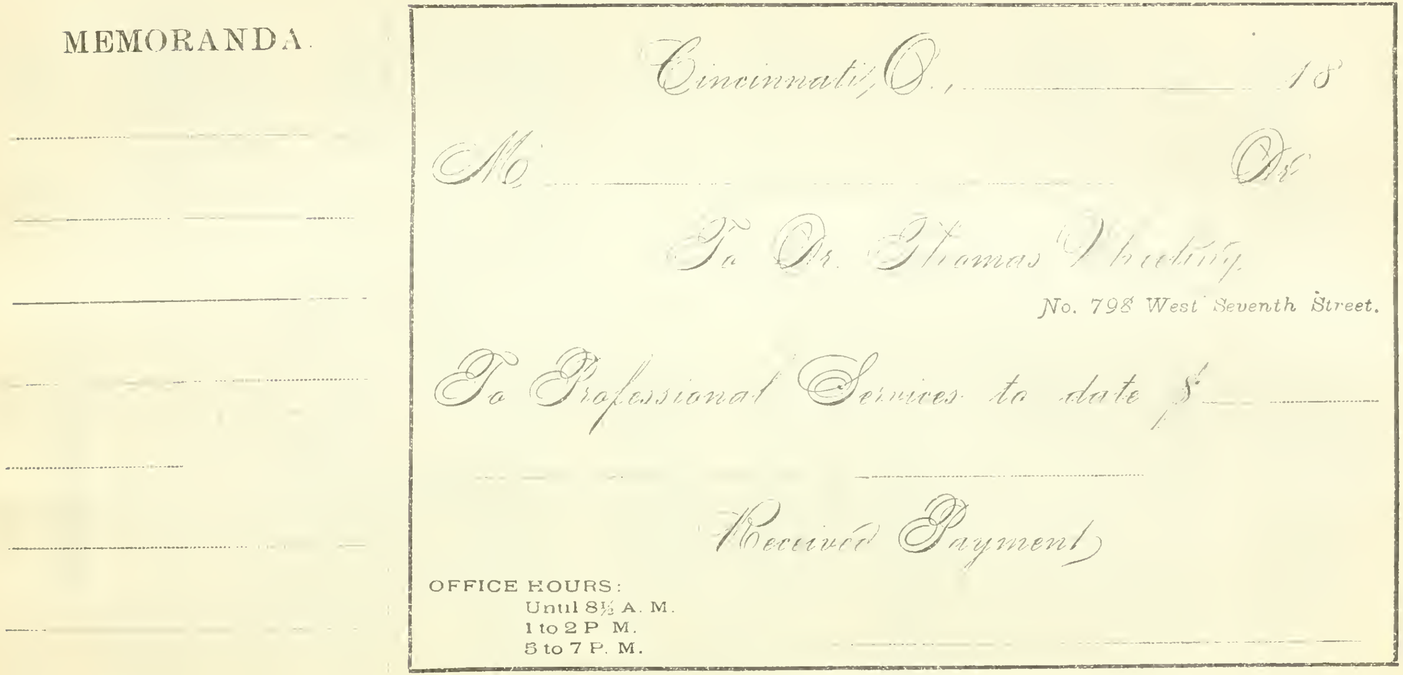

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Anti-Chlorotic	75	3 50
Potass, Chlor. 1 gr.		
Ferri. Chlor. ⅓ gr.		
Pulv. Podophylli, 1 gr.		
Pulv. Myrrhæ, ¼ gr.		
Anti-Choromania	75	3 50
Zinci Valer. 2 grs.		
Ferri Valer. ¼ gr.		
Ext. Sumbul, ½ gr.		
Anti-Chill	1 00	4 75
Chinoidine 1 gr.		
Ferri Ferrocyan, 1 gr.		
Ol. Piper Nig 1 gr.		
Arsenic, 1-20 gr.		
Anti-Dyspeptic, (3 grs.)	1 00	4 75
Strychniæ, 1-40 gr.		
Ext. Belladonnæ, 1-10 gr.		
Pulv. Ipecac, 1-10 gr.		
Mass. Hydrarg. 2 grs.		
Ext. Coloc. Co. 2 grs,		
Anti-Epileptic, (3 grs.)	6 00	29 75
Iron Hydrocyanate, ⅙ gr		
Valerianate Quinine, 1 gr.		
" Zinc, ½ gr.		
Ext. Valerian, 1 gr.		
Anti-Malarial, (McCaw.)	2 25	11 00
Quiniæ Sulph. 1 gr.		
Ferri Sul. Exs. ½ gr,		
Ol. Res. Pip. Nig. 1-16 gr.		
Ac. Arsenious, 1-80 gr.		
Gelsemin. ¼ gr.		
Podophyllin. ⅛ gr.		
Anti-Spasmodic	75	3 50
Ext. Hyoscyami, ½ gr.		
Morphia Acetat, 1-10 gr.		
Brom. Camphor, ½ gr.		
Pulv. Capsici, ½ gr.		
Anti-Splenetic	60	2 75
Pulv. Aloes Soc. 1 gr.		
" Ammoniaci, ½ gr.		
" Myrrhæ, ½ gr.		
Ext. Bryony. 1 gr.		
Anthelmintic	1 00	4 75
Santonin. Calomel, aa. 1 gr		
Antimonii Comp. U. S. P. (Pil. Calomel Comp.)	$ 40	$1 75
Calomel.		
Oxysulph. Antimony.		
Guaiacum Resin.		
Anti-Periodic	80	3 75
Cinchonæ Sulph. 1 gr.		
Ferri Sulph. Exsic., 1 gr.		
Ext. Quassiæ, ½ gr.		
" Rhei., ¼ gr.		
Pulv. Myrrhæ, ⅜ gr.		
Aperient	90	4 25
Ext. Nux Vomica, ⅛ gr.		
" Hyoscyam, ½ gr.		
" Coloc. Comp., 2 grs.		
Aperient, Drysdale's	60	2 75
Pulv. Rhei, 1¼ grs.		
" Al. Soc. 1¼ grs.		
" Ipec. 5-12 gr.		
" Nux Vomica, ½ gr.		
Aperient, Mild	50	2 25
Ext. Col. Co., ⅓ gr.		
" Hyosc., ⅙ gr.		
Pulv. Rhei., 1 gr.		
Ol. Cari.		
Apocynum. 2 grs.	70	3 25
Assafœtida, U. S. P.	40	1 75
" 2 grs.	40	1 75
Assafœtida, Comp.	40	1 75
Assafœtida, 2 grs. Ferri Sul. Exc. 1 gr.		
Assafœtida, et Rhei	75	3 50
Assafœtida, 1 gr. Pulv. Rhei. 1 gr. Ferrum per Hyd. 1 gr.		
Astringent	60	2 75
Ext. Geranii, 2 grs.		
Pulv. Opii, ¼ gr.		
Ol. Menth. pip., 1-20 gtt.		
Ol. Res. Zingiber, 1-20 gtt.		
Atropia, 1-60 gr.	75	3 50

On receipt of TEN DOLLARS I will send to Physicians, Express Freight Prepaid as follows:

Sugar-Coated Pills, Fluid Extracts and Resinoids,

As the purchaser may select, at List Price, amounting to $15.00. I make this liberal offer as an inducement for those who have not used my articles to give them a trial.

☞ A complete Price Current and Dose Book furnished on application. Pills sent by Mail in any quantity up to four pounds, at one cent per ounce.

	Price per bottle of	
	100 each.	500 each.
BALLOU	75	3 50
Ext. Col. Comp., 1 gr.		
" Jalap, 1 gr.		
Hyd. Chlor. Mit., 1 gr.		
Pulv. Ipec., ⅛ gr.		
BELLADONNA EXT., (Eng.) ¼ gr.	40	1 75
" " ½ gr.	50	2 25
" " 1 gr.	60	2 75
BISMUTH, SUB. CARB., 3 grs	75	3 50
" SUB-NIT., 3 grs	75	3 50
BISMUTH ET NUX VOMICA	1 50	7 25
Bismuth Sub. Carb., 1 grs.		
Ext. Nux Vomica, ¼ gr.		
BISMUTH AND NUX VOMICA	1 50	7 25
Bismuth Subnit. 5 grs.		
Ext. Nux Vomica, ½ gr.		
BISMUTH AND IGNATIA	1 50	7 25
Bismuth Sub-Carb., 4 grs.		
Ext, Ignatia Amara, ¼ gr.		
CAFFEIN CITRAT., 1 gr	4 50	22 25
CALOMEL, ½ gr., 1 gr., 2 grs., 3 grs	40	1 75
" 5 grs	50	2 25
CALOMEL COMP., (Plummer's) 3 grs.	40	1 75
Calomel.		
Oxysulph. Antimony.		
Guaiacum Resin.		
CALOMEL ET IPECAC. COMP.	50	2 25
Calomel, 1 gr.		
Pow'd Ipecac, Comp., 3½ grs.		
Ext. Gentianæ, q. s.		
CALOMEL ET RHEI	3 75	38 50
Ext. Rhei., ½ gr. Calomel, ⅛ gr		
Ext. Coloc. Co., ½ gr.		
Ext. Hyoscyami, ⅙ gr.		
CAMPHOR ET HYOSCYAMUS	50	2 25
Gum Camph., 1 gr.		
Ext. Hyos. Eng., 1 gr.		
CAMPHOR COMP., 3 grs	90	4 25
Gum Camph. 1 gr. Powd. Kino. 1 gr.		
Powd. Opium, 1 gr. Ex. Capsi. ⅛ gr.		
CANNABIS INDICA EXT., ¼ gr	60	2 75
CATHARTIC COMP., U. S. P.	50	2 25
Ext. Coloc. Comp., 1⅛ grs.		
" Jalapæ, 1 gr.		
Calomel, 1 gr.		
Pulv Gambogiæ, 2-9 gr.		
CATHARTIC, (Vegetable.)	60	2 75
Ext. Coloc. Simp., ⅓ gr.		
Podophyllin, ¼ gr.		
Pulv. Res. Scam., ⅛ gr.		
" Aloes Socot, 1¼ gr.		
" Cardamomi, 1-9 gr.		
" Saponis, ⅛ gr.		
CARTHARTIC COMP. (Improved) 3 grs	60	2 75
Ext. Coloc. Comp., 1 gr.		
" Jalapæ, ½ gr.		
Podophyllin, ¼ gr.		
Leptandrin, ½ gr.		
Ext. Hyoscyamus, ¼ gr.		
" Gentianæ, ¼ gr.		
Ol. Menth. Pip.		
CATHART., COMP. CHOLAGOGUE	60	2 75
Res. Podophylii. ½ gr.		
Pil. Hydrarg., ¼ gr.		
Ext. Hyoscyami, ½ gr.		
" Nuc Vomica, 1-16 gr.		
Ol. Res. Capsici, ⅓ gtt.		
CAULOPHYLLIN, 1-10 gr	40	1 75
CERIUM OXALAS, 1 gr	1 00	4 75
CHAPMAN'S DINNER PILLS	60	2 75
Pulv. Aloes Socot.		
" Rhei Opt.		
Gum Mastich.		
CHINOIDIN, 1 gr	40	1 75
" 2 grs	50	2 25
CHINOIDIN COMP	1 00	4 75
Chinoidin, 2 grs.		
Ferri Sulph. Exsic., 1 gr.		
Oleo-Resin, Pip, N. ½ gr.		
CHIRETTA, EXT., 3 grs	1 60	7 25
CIMICIFUGIN, 1-10 gr	40	1 75

	Price per bottle of	
	100 each.	500 each.
CINCHONIA SULPHAT, 3 grs	1 00	4 75
CINCHONA SULPHAT, 1½ gr	60	2 75
CINCHONIDIA SULPH., ½ gr	50	2 25
" " 1 gr	70	3 40
" " 2 grs	1 35	6 25
" " 3 grs	2 00	9 50
COCCIA	90	4 25
Res. Scamony Pure, 1 gr.		
Pulv. Aloes Socot, 1¼ gr.		
" Colocynth, ½ gr.		
Potass Sulph., ⅛ gr.		
Ol. Caryoph, ⅛ gr.		
CODIA, 1-16 gr	3 65	16 00
COLOCYNTHIDIS COMP., 3 grs. (Extract Colocynth Comp. U.S.P.	80	3 75
COLOCYNTH ET HYDRARG ET IPECAC.	75	3 50
Pulv. Ext, Coloc Comp., 2 grs.		
Pil. Hydrarg, 2 grs.		
Pulv. Ipecac, ⅙ gr.		
COLOCYNTH ET HYOSCYAMUS	75	3 50
Ext. Col. Co., 2½ grs		
Ext. Hyoscyamus, 1⅛		
COOK'S 3 grs	50	2 25
Pulv. Aloes Soc., 1 gr.		
" Rhei. 1 gr.		
Calomel, ½ gr.		
Sapon Hispan, ⅓ gr.		
COPAIBÆ, U. S. P., 3 grs	50	2 25
COPAIBÆ COMP	80	3 75
Pil. Copaibæ.		
Resin Guaiac.		
Ferri Cit.		
Oleo-Resin Cubebæ.		
COPAIBÆ, ET EXT. CUBEBÆ	80	3 75
Pil. Copaibæ, 1 gr.		
Oleo-Resin Cubebæ, 1 gr.		
CORROSIVE SUBLIMATE, 1-12, 1-20, 1-30 and 1-40 grs	40	1 75
DIGITALIN, 1-60 gr	75	3 50
DIGITALIS COMP	50	2 25
Pulv. Digital, Eng. 1 gr.		
" Scillæ. 1 gr.		
Potass, Nit. 2 grs.		
DIURETIC	50	2 25
Sapo Hispan, Pulv. 2 grs.		
Sodæ Carb. Exsic, 2 grs.		
Ol. Baccæ Junip, 1 drop.		
DUPUYTREN	50	2 25
Pulv. Guaiac, 3 grs.		
Hydg. Chlor. Corros. 1-10 gr.		
Pulv. Opii, ⅙ gr.		
ECCOPROTIC	60	2 75
Ext. Aloes Soc., 2 grs.		
" Nuc Vomica, 1-5 gr.		
Res. Podophylli, 3-10 gr.		
Ol. Caryophyl, 1-10 gtt.		
ELATERIUM, (Clutterbuck's) 1-10 gr	90	4 50
EMMENAGOGUE, (Mutter)	40	1 75
Ferri Sulph., 1½ gr.		
Aloe Socot. Pulv., ½ gr.		
Terebinth Alb., 1½ gr.		
EMMENAGOGUE	1 40	6 75
Ergotine, 1 gr.		
Ext. Hellebore Nig., 1 gr.		
Aloes, 1 gr.		
Ferri Sulph., 1 gr.		
Ol. Sabina, ½ gr		
FEL. BOVINUM	50	2 25
Ox. Gall. 2 grs.		
Powd. Jam Ginger, 1 gr		
FERRI	1 40	6 75
Pulv. Aloes Socot. ½ gr.		
" Zingib, Jam., 1 gr.		
Ferri Sulph. Exsic. 1 gr		
Ext. Conii, ⅓ gr		
FERRI, (Quevenne's) 1 gr	50	2 25
" 2 grs	75	3 75
" CARB (Vallett's) U. S. P. 5 grs	40	1 75
" CITRAT, 2 grs	50	2 25
" COMP., U. S. P.	40	1 75
FERRI FERROCYANID, 3 grs	50	2 25

W. J. M. GORDON'S PRICE LIST OF SUGAR-COATED PILLS.

	Price per bottle of	
	100 each	500 each
FERRI IODID., 1 gr.	65	3 00
" LACTAT., 1 gr.	50	2 25
" PYROPHOSPHATE, 1 gr.	40	1 75
" SULPH. EXSICCAT., 2 grs.	40	1 75
" VALER., 1 gr.	1 00	4 75
FERRI ET QUAS., et NUX VOM.	75	3 50
Fer. per Hydrogen, 1½ gr.		
Ext. Quassiæ 1 gr.		
" Nux Vomica, ¼ gr.		
Pulv. Saponis, ½ gr.		
FERRI ET QUINIÆ CIT., 1 gr.	75	3 50
" " " 2 grs.	1 40	6 75
FERRI ET STRYCHNIÆ	75	3 50
Strychniæ 1-60 gr.		
Fer. per Hydro (Quevennes) 2 grs		
FERRI ET STRYCHNIÆ CIT.	76	3 50
Strych. Cit. 1-50 gr. Ferri Cit. 1 gr.		
GALBANI COMP. U. S. P.	50	2 25
Galbanum 1½ gr.		
Pulv. Myrrh., 1½ gr.		
Assafœtida 1½ gr.		
GAMBOGIÆ COMP.	40	1 75
Pulv. Gambogiæ.		
" Aloe Socot.		
" Zingib. Jam.		
" Saponis.		
GENTIAN COMP.	40	1 75
Ext. Gentian ⅔ gr.		
Aloes Socot., ⅔ gr.		
Pulv. Rhei 1⅓ gr.		
Ol. Carui, 1-5 gr.		
GONORRHŒÆ	60	2 75
Pulv. Cubebæ, 2 grs.		
Bals. Copaibæ Solid, 1 gr.		
Ferri Sulph. Exsic., ½ gr.		
Terebinth. Venet., 1½ gr.		
GELSEMIN, 1-16 gr.	40	1 75
" ¼ gr.	75	3 50
" ⅛ gr.	50	2 25
HELONIN, 1-10 gr.	60	2 75
HEPATIC	80	3 75
Pil. Hydrarg. 3 grs.		
Ext. Colocynth Comp., 1 gr.		
" Hyoscyami, 1 gr.		
HOOPER'S (Female Pills, 2½ grs.	40	1 75
Aloes Socot.		
Ferri Sulph. Exsic.		
Ext. Hellebor.		
Pulv. Myrrh.		
" Saponis.		
" Canellæ.		
" Zingib. Jam.		
HYDRARGYRI, U. S. P., 3 grs.	40	1 75
" 5 grs.	50	2 25
HYDRARGYRI COMP.	90	4 25
Mass. Hydrarg., 1 gr.		
Pulv. Opii, ½ gr.		
" Ipecac, ½ gr.		
HYDRARG. IODIDE, ⅛ gr.	40	1 75
" " ¼ gr.	50	2 25
" " Rubr., 1-16 gr.	40	1 75
" Iod. et Opii (Ricord's)	75	[illegible]
Hydrg. Iodid., 1 gr.		
Pulv. Opii, ½ gr.		

	Price per bottle of	
	100 each	500 each
HYDRASTIN, ½ gr.	[illegible]	4 50
HYOSCYAMUS EXT., (Eng.) ½ gr.	40	1 75
IGNATIA AMARA EXT., ¼ gr.	50	2 25
IPECAC ET OPII, (Pul. Doveri, U.S.P. 3½ grs.	50	2 25
IPECAC ET OPII. 5 grs.	[illegible]	[illegible]
IODOFORM., 1 gr.	1 60	[illegible]
IODOFORM ET FERRI	2 00	9 75
Ferrum per Hyd. 1 gr. Iodoform, 1 gr.		
IRISIN COMP.	50	2 25
Irisin ¼ gr. Podophyllin 1-10 gr. Strychniæ, 1-40 gr.		
LAXATIVE	60	2 75
Pulv. Aloes Soc., 1 gr.		
Sulphur, 1-6 gr.		
Res. Podophyll 1-5 gr.		
" Jalapæ, ½ gr.		
Syr. Rhamni q. s.		
LEPTAND. COMP.	1 00	4 75
Leptandrin 1 gr. Irisin, ¼ gr. Podophyllin, ½ gr.		
LEPTANDRIN, ⅛ gr.	[illegible]	1 [illegible]
" ¼ gr.	[illegible]	1 [illegible]
" ½ gr.	[illegible]	[illegible]
" 1 gr.	[illegible]	[illegible]
LUPULIN 3 grs.	40	1 75
MACROTIN, 1-10 gr.	[illegible]	1 [illegible]
MAGNESIÆ ET RHEI, (1 gr. each.)	[illegible]	1 [illegible]
MORPHIA ACET., ⅛ gr.	[illegible]	[illegible]
" SULPHATE, 1-20 gr.	40	1 [illegible]
" " 1-10 gr.	50	2 [illegible]
" " ⅙ gr.	[illegible]	[illegible]
" " ⅛ gr.	70	[illegible]
" " ¼ gr.	1 00	4 [illegible]
" VALERIAN, ⅛ gr.	[illegible]	4 [illegible]
MORPHIÆ COMP.	[illegible]	7 25
Morph. Sulph. ¼ gr.		
Ant. et Pot. Tart. ¼ gr.		
Calomel, ¼ gr.		
NEURALGIC, (Brown Sequard.)	2 00	9 75
Ext. Hyoscyami, ⅓ gr.		
" Conii, ⅓ gr.		
" Ignat. Am. ⅓ gr.		
" Opii ⅓ gr.		
" Aconiti, ¼ gr.		
" Cannab. Ind. ¼ gr.		
" Stramon, 1-5 gr.		
" Bellad. ¼ gr.		
NEURALGIC, (Prof. R. D. Gross)	3 00	14 75
Quiniæ Sulph. 2 grs.		
Morphia Sulph. 1-20 gr.		
Strychnia 1-30 gr.		
Acid Arsenious, 1-20 gr.		
Ext. Aconiti, ½ gr.		
NEURALGIC (Gross) without Morphia	3 00	14 75
NEURALGIC IDIOPATH	2 00	9 75
Ext. Hyoscyam. ⅓ gr.		
" Conii, ⅓ gr.		
" Ignat. Am. ⅓ gr.		
" Opii, ⅓ gr.		
" Aconiti ¼ gr.		
" Cannab. Ind. ¼ gr.		
" Stramon, 1-5 gr.		
" Belladonnæ, ⅓ gr.		

From Prof. John King, Editor American Eclectic Dispensatory, King's American Practice, etc.

"For the last five or six years I have made use a considerable quantity of Glycerin manufactured by W. J. M. Gordon, of this city, for medicinal purposes, and I have no reason whatever for complaint, as it has in every instance answered the purpose admirably. I have likewise used in my practice the leading Eclectic preparations manufactured by him, as Resin of Mandrake or Podophyllin, Leptandrin, Iridin, Alnuin, Alcoholic Extracts of Black Cohosh, as well as several Fluid Extracts, and I have been much pleased with their action, as they have invariably fulfilled the indications for which they are prescribed. I therefore take great pleasure and satisfaction in recommending Mr. Gordon to the Eclectic profession as one among our many excellent manufacturers whose preparations may be relied upon." [Signed.] JOHN KING, M. D.

FIRST PREMIUM AWARDED IN 1874.

	Price per bottle of	
	100 each	500 each
NUX VOMICA, EXT., ¼ gr	40	1 75
" ½ gr	40	1 75
OPII. U. S. P., 1 gr	75	3 50
OPII, ET CAMPHORÆ	1 00	4 75
Pulv. Opii, 1 gr. Camphoræ, 2 grs.		
OPII ET CAMPH. ET TANNIN	1 [illegible]	4 75
Pulv. Opii ¼ gr. Camphoræ, 1 gr.		
Acid Tannic, 2 grs.		
OPII ET PLUMBI ACET	75	3 50
Pulv. Opii, ½ gr		
Plumbi Acet. 1½ gr.		
PHOSPHORUS, 1-50 gr	1 00	4 75
" 1-100 gr	1 00	4 75
PHOSPHORUS COMP	1 25	6 00
Phosphorus, 1-100 gr.		
Ext. Nux Vomica, ¼ gr		
PHOSPHORUS, IRON & NUX VOMICA	1 75	8 50
Phosphorus, 1-100 gr		
Ferri Carb (Vallet's) 1 gr.		
Ext. Nux Vomica, ¼ gr.		
PODOPHYLLIN, 1-10 gr	40	[illegible]
" ¼ gr	40	1 75
" ½ gr	50	2 25
" 1 gr	75	3 50
PODOPHYLLIN COMP	75	3 50
Podophyllin, ¼ gr.		
Ext. Hyoscyami ⅛ gr.		
" Nux Vom., 1-16 gr		
PODOPHYLLIN ET BELLADONNÆ	75	3 50
Podophyllin ¼ gr.		
Ext. Bellad., ⅛ gr		
Ol. Res. Capsici ⅛ gr.		
Sacchari Lact. 1 gr.		
PODOPHYLLIN COMP., ([illegible])	75	3 50
Podophyllin, ⅛ gr.		
Leptandrin, 1-16 gr.		
Juglandin, 1-16 gr.		
Macrotin, 1-32 gr. Ol. Capsici.		
PODOPHYLLIN ET HYOSCYAMUS	60	2 [illegible]
Podophyllin,		
Ext. Hyoscyamus, aa ⅛ gr		
PODOPHYLLIN ET HYDRARG	[illegible]	[illegible]
Podophyllin, ¼ gr.		
Pil. Hydrarg. 2 grs.		
POTASS BROMID. 1 gr	[illegible]	[illegible]
" " 5 grs	[illegible]	[illegible]
" Iodid. 2 grs.	[illegible]	[illegible]
" PERMANG. CRYST., ⅛ gr.	[illegible]	[illegible]
QUINIÆ SULPH., ½ gr	[illegible]	5 [illegible]
" " 1 gr	[illegible]	7 [illegible]
" " 2 grs	[illegible]	[illegible]
" " 3 grs	[illegible]	[illegible]
QUINIÆ VALERIANATE, ½ gr	[illegible]	[illegible]
" " 1 gr	[illegible]	[illegible]
" " 2 grs	[illegible]	[illegible]
QUINIÆ COMP	1 75	[illegible]
Quiniæ Sulph., 1 gr		
Ferri per Hydrogen, 1 gr.		
Acid Arsenious, 1-60 gr		
QUINIÆ ET COLOCYNTH. COMP	2 [illegible]	11 00
Quiniæ Sulph., 1 gr		
Ext. Col. Comp., 1 gr.		
" Ignat. Amar., ⅛ gr		
Piperine, ⅛ gr		
Morph. Sulph., 1-12 gr.		
QUINIÆ ET EXT. BELLADONNÆ	1 75	8 50
Quiniæ Sulph., 1 gr.		
Ext. Belladon., ⅛ gr.		
QUINIÆ ET FERRI CARB	[illegible]	8 50
Quiniæ Sulph., 1 gr.		
Ferri Carb (Vallet's), 2 grs.		
QUINIÆ ET FERRI FERROCYAN	[illegible]	11 [illegible]
Quiniæ Sulph., 1 gr.		
Ferri Ferrocy., 1 gr.		
Oleo-Res. Capsici, 1-[illegible] gr		
Gelsemin, 1-[illegible] gr.		
Podophyllin, 1-20 gr.		
Strychnia, 1-60 gr.		
QUINIÆ ET FERRI	1 75	[illegible]
Quin. Sulph., 1 gr.		
Ferrum per Hydrogen, 1 gr		
QUINIÆ ET FERRI LACT. COMP	1 75	8 50
Quiniæ Sulph., 1 gr.		
Ext. Ignati Amar., ⅛ gr		
Ferri Lactat. 2 grs.		
QUINIÆ ET FERR ET STRYCHNIÆ	1 75	8 50
Quiniæ Sulph., 1 gr.		
Ferri Carb. (Vallet's) [illegible] grs.		
Strych. Sulph. 1-60 gr		
QUINIÆ ET FERRI ET STRYCH. PHOS.	1 75	8 50
Phos. Quiniæ, 1 gr.		
" Iron, 1 gr		
" Strych., 1-60 gr.		
QUINIÆ, IODOFORM and IRON	3 00	14 75
Iodoform, 1 gr		
Ferri Carb. (Vallet's.) 2 grs.		
Quiniæ Sulph., ½ gr.		
QUINIÆ, VALERIANATE, ½ gr	2 00	9 75
" ET FERRI VALER., 2 grs	3 50	17 [illegible]
QUINIÆ ET HYDRARG	1 75	8 50
Quiniæ Sulph., 1 gr		
Mass. Hydrarg. 2 grs		
Oleo-Resin. Pip. Nig., ⅛ gr.		
QUINIÆ ET STRYCHNIA	1 75	8 50
Quin. Sulph., 1 gr		
Strychnia, 1-60 gr		
QUINIÆ ET ZINCI VALER	4 00	19 75
Quin. Valer. 1 gr. Zinci Valer. 1 gr.		
RHEI, U. S. P.	75	3 50
Pulv. Rhei, 3 grs.		
" Saponis, 1 gr.		
RHEI, COMP. U. S. P.	[illegible]	[illegible]
Pulv. Rhei 2 grs.		
Pulv. Aloes Socot., 1½ grs.		
" Myrrh, 1 gr.		
Ol. Menth. Pip.		
RHEI ET HYDRARG	1 [illegible]	4 75
Pulv. Rhei,		
Mass. Hydrarg. } 4 grs.		
Sodæ Carb. Exs.		
RHEUMATIC	[illegible]	4 25
Ext. Coloc. Co., 1½ grs.		
" Colchi Acet., 1 gr.		
" Hyoscyami, ⅛ gr.		
Hyd. Chlor. Mit., ½ gr.		
SANTONIN, 1 gr	1 00	4 75
SALICINE, 1 gr	75	3 50
" 3 grs	1 [illegible]	8 [illegible]
SCILLAE COMP., U. S. P.	60	2 25
Pulv. Scillae, ½ gr.		
" Zin. Jamaica 1 gr.		
Gum Ammoniac, 1 gr.		
Pulv. Saponis, 1½ grs.		
SEDATIVE	[illegible]	3 [illegible]
Ext. Sumbul ½ gr		
" Valerianæ ½ gr.		
" Hyoscyami, ⅛ gr		
" Cannab. Ind., 1-10 gr.		
SILVER NITRATE, ¼ gr	[illegible]	3 [illegible]
SILVER IODIDE, ¼ gr	75	3 50
STOMACHIC, (Daly, Webster's Dinner Pills) 3 grs.	60	2 25
Pulv. Aloes Socot.,		
Gum Mastich, Flor. Rosæ.		
STRYCHNIA, 1-20, 1-30, 1-40, 1-50, 1-60 gr	40	1 75
SYPHILITIC	1 [illegible]	6 75
Potass. Iodid., 2½ grs		
Hyd. Bichlor., 1-30 gr.		
TART. EMETIC, 1-20, 1-10, ⅛ gr	40	1 75
TONIC	[illegible]	4 75
Ext. Gentianæ, 1 gr.		
" Humuli, ½ gr.		
Ferri Carb. Sacch., ½ gr.		
Ext. Nux Vomica 1-20 gr.		
Res. Podophyll., 1-25 gr		
Ol. Res. Zingiber. 1-10 gtt.		
TRILLIN, 1-10 gr	[illegible]	[illegible]
TRIPLEX	[illegible]	[illegible]
Aloes Socot. 2 grs. Pil. Hydrarg. 1 gr		
Podophyllin, ¼ gr		
VERATRIA SULPHATE, 1-12 gr	1 [illegible]	[illegible]
ZINCI VALERIANATE, 1 gr	1 [illegible]	[illegible]

W. J. M. GORDON'S FLUID EXTRACTS.

	Per Pint.
Aconite Leaves, *Aconitum Napellus*	$1 90
" Root, " "	2 00
Agrimony, *Agrimonia Eup*	1 75
Aletris, *Aletris Far*	2 25
Aloes	2 75
Allspice, *Eugenia Pimenta*	2 00
Ampelopsis, *Ampelopsis Quinq*	2 00
Am Valerian, Lady's Slipper, *Cypripdium*	2 25
Angelica Root, *Angelica*	1 25
Angustura Bark, *Gilepia Off*	4 00
Anise Seed, *Pimpinnella Anisum*	8 00
Apple-tree Bark, *Pyrus Malus*	1 50
Arnica, *Arnica Montana*	1 75
Arnica Root	2 25
Aromatic	2 25
Asparagus, *Asparagus Offic*	1 25
Ash, Black, *Fraxinus Samb*	2 00
Ash, White, *Fraxinus Acum*	2 00
Avens Root, *Geum Rivale*	1 50
Balsam Fir, *Fucus Vesic*	1 50
Balm, Sweet, *Melisa*	1 25
Balm Gilead	1 50
Balmony, *Chelone Glabra*	1 25
Barberry Bark, *Berberis*	1 25
Bayberry, *Myrica Cerefira*	1 25
Bayberry Comp., *Myrica Cerefira*	1 25
Bearsfoot, *Polymnia Ured*	4 00
Belladonna *Atroap Belladonna*	2 50
Belladonna Root, *Atropa Belladonna*	2 50
Beth Root, *Trillium*	1 75
Bitter Root, *Apocynum Andros*	2 00
Bittersweet, *Dulcamara*	1 50
Bladder Root	4 50
Black Alder, *Rinos Vertic*	1 50
Black Haw, *Viburnum Prun*	1 75
Blackberry Root, *Rubus Vilosus*	1 50
Black Cohosh, *Cimicfuga*	2 00
Black Cohosh Comp	2 00
Black Hellebore, *Helleborus Niger*	1 75
Black Pepper, *Piper Nigrum*	1 75
Bloodroot, *Sanguinaria Canad*	1 75
Blue Cohosh, *Caulophullum*	1 50
Blue Cohosh Comp	2 00
Blue Flag, *Iris Versicolor*	1 75
Boneset, *Eupator Perfol*	1 25
Boxwood, *Cornus Florida*	1 50
Broom Tops, *Scoparius*	1 75
Bryonia, White, *Byronia Alb*	2 50
Buchu, *Barosma*	2 50
" Comp	2 50
Buchu and Pareira Brava	3 50
Buckthorn, *Rham Cath*	1 50
Buckthorn Berries	1 50
Buckthorn Brake, *Osmunda Regalis*	2 00
Bugleweed, *Lycopus Virginica*	1 50
Burdock, *Lappa Minor*	1 50
Burdock Seed	1 50
Butternut, *Juglans*	1 25
Button Snake Root, *Liatra Spicata*	1 50
Buckthorn Bark, *Rhamnus Frang*	2 00
Cactus Grandiflora	18 00
Caenothus, *Americana*	2 00
Calabar Bean	6 00
Calamus Root	2 00
Calendula Flos	4 00
Cancer Root, *Orobanche Virginia*	2 25
Canella, *Canella Alba*	1 50
Cannabis Indica	3 50
Cantharides	5 00
Caraway Seed	3 00
Cardamon Seed	7 50
Cardamon Seed Comp	3 00
Carpenter Square, *Scrophularia Mar*	1 75
Castor Leaves, *Ricinus Coms*	3 00
Cascarilla, *Croten Eleuteria*	1 00
Castor Oil Bean	3 00
Castor Oil Bean Arom	3 00
Cassia, *Cinnamonium*	3 00
Catnip, *Nepeta Cataria*	1 25
Catechu	2 00
Cayenne, *Capsicum*	8 00
Centaury, Red, *Sabbatia*	1 50
Chamomile, *Anthemis*	1 75
Checkerberry, *Mitchella Repens*	1 25

	Per Pint.
Cherry Bark, Wild, *Prunis Virg*	1 75
" " Comp "	1 75
Chestnut Leaves, *Castinae Americana*	2 00
Chiretta, *Agath Chir*	4 00
Cinnamon Bark, "Ceylon," *Cassia*	8 00
Cinchona Aromat	4 25
Cinchona, Cal. U. S. P	4 25
" Comp	2 50
" Palad	2 50
" Rub	4 25
Cleavers, *Gallium*	1 25
Cloves, *Caryophyllus Arom*	2 00
Clover Heads, *Trifolium Pratense*	2 00
Coca, *Erythoxyloncoca*	7 50
Cochineal, *Coccus Cacti*	4 00
Coffee, *Coffea Arobica*	3 00
Colchicum Root, *Colchicum Autumnale*	2 00
Colchicum Seed, *Colchicum Autumnale*	2 75
Collinsonia, *Collinsonia Can*	1 75
Colocynth, *Colocynthis*	2 25
Colocynth Comp	2 25
Columbo, *Cocculus Palmatus*	2 50
" Amer., *Frasera*	1 25
Coltsfoot, *Tussilago*	1 50
Comfrey, *Symphytum*	1 50
Condurango	4 00
Conium, *Conium Maculatum*	2 00
Conium Seed, *Conium Mac*	2 50
Coriander Seed, *Corandrum Sativum*	2 00
Cotton Root Bark, *Gossypium Herbacium*	3 00
Cramp Bark, *Viburnum*	1 50
Cranesbill, *Geranium Maculatum*	1 75
Crawley	3 50
Cubebs, Alcoholic. *Cubeba*	2 50
" Etherial, *Oleo-Resina*	7 35
Culver's Root, *Leptandria Virg*	2 00
Celery Seed	3 00
Couch Grass, *Triticum Rep*	2 00
Damiana	6 25
Dandelion, *Taraxacum*	2 00
" Comp	2 00
" and Senna	1 75
Dewberry Root, *Rubus Trivialis*	1 50
Deer Tongue, *Liatris Odor*	2 00
Dog Wood, *Cornus Flor*	1 25
Dragon Root, *Arum Triphylium*	2 50
Dwarf Elder, *Arlia Hispida*	1 25
Evening Primrose, *Oenothera Bien*	4 00
Elder Flowers, *Sambucus*	1 50
Elecampane, *Inula*	1 25
Ergot and Cotton Root	3 50
Ergot Acet, *Secaleornuum*	5 00
Ergot, *Ergata*	5 00
Ergot Etherial	6 00
Eucalyptus, *Globulus*	4 50
Euphrasia, *Euphrasia Off*	1 75
False Unicorn Root, *Helonias Dioica*	3 00
Fennel Seed, *Foeniculum Vulgare*	2 00
Fern, Sweet, *Comptonia*	1 25
Fever Bush, *Benzoine Odoriferum*	1 25
Fever Tree, *Eucalyptus Glob*	6 00
Feverfew, *Purethrum*	1 25
Figwort	1 75
Fireweed, *Erechthites*	1 50
Fleabane, *Erigeron*	1 50
Foxglove, *Digitalis*	1 75
Fringe Tree, *Chiomanthus Virg*	3 00
Frost wort, *Helianthemum*	1 50
Galls, *Galla*	2 75
Garden Celandine, *Chelidonium*	1 50
Garlic, *Allium Sativum*	2 00
Geiseminum, *Gels. Semp*	2 50
Gentian *Gentiana Lutea*	1 50
" Compound	1 75
Ginger, *Zingiberis*	2 25
Golden Rod, *Solidago*	1 25
Golden Seal, *Hydrastis*	2 90
Gold Thread, *Coptis*	1 75
Gravel Plant, *Epigea Repens*	1 75
Greek Valerian	1 75
Guaiac Wood, *Guaiacum Off*	1 50
Guarana, *Paullinia Sorbilis*	10 00
Grindelia Robusta	4 00
Hardhack, *Spiraea Tomentoso*	1 25

W. J. M. GORDON'S PRICE LIST OF FLUID EXTRACTS.

	Per Pint.
Hellebore, American, *Vetraum Viride*	$2 00
“ Black, *Helaebous Nig*	1 75
“ White, *Veratrum Alb.*	2 00
Hemlock, *Pinus Canadensis*	1 25
Henbane, *Hyoscyamus*	2 50
High Cranberry, *Viburnum Opulus*	1 50
Hoarhound, *Morrubium*	1 50
Hops, *Humulus*	2 50
Horse Radish, *Cochlearia Armor*	2 00
Horsemint, *Monarda*	1 50
Hydrangea, *Hydrangea Abariscens*	1 75
Hyssop, *Hyssopus*	1 50
Ignatia Bean, *Ignatia Amara*	3 50
Indian Hemp, *Apocynu Canap*	2 00
“ “ Foreign, *Canabis Indica*	3 50
“ “ White, *Asclepias Inc*	1 75
“ Physic, *Gillenia Taifoliata*	1 25
“ Turnip, *Arum Tuiph*	1 50
Ipecac, American, *Gillenia*	1 50
Ipecac, *Cephœdis Ipecacuanha*	6 00
“ and Seneka	6 00
Jalap, *Jalapœ*	4 00
Jersey Tea, *Ceanothus Armor*	1 50
Jaborandi, *Pilicapus Pinnatus*	7 50
Johnswort, *Hypericum*	1 25
Juniper Berries, *Juniper is Communis*	1 25
Kino	2 00
Kousso, *Brayera Anthelmintica*	7 50
Ladie's Slipper, *Cypripedium Pubescens.*	2 25
Larkspur Seed, *Delphinium Consoida*	1 00
Laurel Leaves, *Kalmia*	1 75
Lemon Peel, *Ditrus Limonum*	1 25
Lettuce, *Lactuca Saliva*	1 50
Licorice, *Glycyrrhiza Glabra*	1 50
Life Root, *Senecio Aureus*	1 50
Lily White, Pond, *Nymphaea*	1 25
Liverwort, *Hepatica Americana*	1 50
Lobelia, *Lobelia Inflata*	1 75
Lobelia Seed, *Lobelia Inflata*	2 50
“ Comp	1 75
Logwood, *Hæmatocylon*	1 25
Lovage, *Ligusticum Levisti*	1 50
Lungwort, *Pulmonaria*	1 50
Lupulin, *Lupulina*	3 50
Lupulin, Comp	3 00
Malt	2 00
Myrrh	2 00
Mace, *Myristica Fragrans*	5 00
Maidenhair, *Adiant Ped*	1 50
Male Fern	1 50
Mandrake, Comp	1 75
Mandrake, *Podophyllum*	1 75
Marsh Mallow, *Althaea Off*	1 50
Marsh Rosemary, *Statice Limonum*	1 25
Masterwort, *Heracleum Lanatum*	2 00
Matico, *Artanthe Elongata*	3 00
Mezeron Bark, *Mezereum*	2 00
Motherwort, *Leonurus*	2 00
Mountain Ash Bark, *Sorbus Aacap*	1 50
Mugwort, *Artemisia*	1 25
Musk Root, *Sambal*	5 50
Mullein Leaves, *Verbascam*	1 25
Nettle, *Critica Diocia*	1 50
Nutgalls, *Gala*	1 50
Nutmeg, *Myristica*	5 00
Nutmegs *Myristica Frag*	6 00
Nux Nomica, *Strychnos Nux Vomica*	2 25
Oak Bark Red, *Quercas Rab*	1 25
Opium, Aqueous, *Strength of Laudanam.*	3 50
“ Deodorized	3 50
Orange Comp., *Aarant Cort*	3 00
Orange Peel, *Aurantium*	1 50
Orange Peel Bitter, *Citras Valgaras*	1 50
Orris Root, *Iris For*	1 75
Pareira Brava, *Cissampelospelos Pareira.*	4 00
Parilla Yellow, *Menisp. Can*	1 40
Patridge Berry, Comp	1 50
Patridge Berry, *Mitchella Repens*	1 75
Peach Tree Bark, *Amygdalus Persica*	1 50
Pellitory, *Pyrethram*	2 00
Pennyroyal, *Hedeoma Pulegioides*	1 50
Peppermint, *Mentha Pepperita*	1 25
Peach Leaves, *Amydalus Persica*	1 75
Peach Pits, “ “	3 00

	Per Pint.
Pink Root, Comp,	2 50
“ “ *Spigelia Maritaupica*	2 50
“ “ and Senna	2 00
Pipsissewa, *Chimaphila Umb*	1 50
Pitcher Plant, *Sarracenia Purpurea*	2 50
Plantain Leaves, *Plantago Major*	1 50
Pleurisy, *Asclepias Tub*	2 00
Poke Berries, *Phytolacca Bacca*	1 75
Poison Oak, *Rhus. Tax*	3 00
Poke Root, *Phytolacco Deo*	1 50
Poplar Bark, *Populus*	1 25
Poppies, *Poparer Somniferum*	1 75
Pomegranate Bark, *Punica Granatum*	2 00
Pond Lilly, *Nymphæa Odorata*	1 25
Prickly Ash, *Xanthoxylum*	1 75
“ Berries. *Xanth. Bacca*	3 00
Ptelea, *Ptelia Trifoliata*	2 00
Pulsatilla	2 50
Pumpkin Seeds, *Cucurbita Pepo*	3 00
Quassia, *Simaruba Excelsa*	1 50
Queen of Meadow, *Eupatorium Purp*	1 50
Raspberry Leaves, *Rubus Strig*	1 50
Red Root, *Ceanothus Amer*	2 00
Red Saunders, *Santalinum Rubrum*	1 25
Rhatany. *Krameria*	2 00
Rhubarb, *Rheum*	5 00
“ Aromatic	4 75
“ and Potass	4 00
“ and Senna	4 00
Rosin Weed, *Silphium*	3 00
Rue, *Ruta Graveolens*	2 00
Saffron, *Crocus Sativus*	4 00
Sage, *Salvia Officinalis*	1 50
Sarsaparilla, Amer	1 50
“ Compound	2 25
“ *Smilac*	2 25
“ *for Syr. Sarsaparilla Comp.*	2 25
“ and Dandelion	2 50
Sassafras, *Sassafra.. Offic*	1 50
Sandal Wood, *Santaluno Alb*	3 50
Savin, *Juniperus Savina*	1 50
Savory, *Satureia Hostensis*	1 50
Scull Cap, *Scutellaria*	2 25
Scullcap, Comp	1 75
Senecio, *Senecio Grac*	1 50
Seneka, *Polygala Senega*	4 50
Senna, *Cassia Acutifolia*	1 50
“ Compound	2 00
“ and Dandelion	1 50
“ and Jalap	2 00
“ and Rhubarb	4 75
Sheep Laurel, *Kalmia Lat*	2 00
Silkweed, *Asclepias Syr*	2 00
Simaruba, *Simaruba Offic*	3 50
Skunk Cabbage, *Dracontium*	1 50
Snake Root, Virginia, *Serpentaria*	3 00
Soap Tree Bark, *Quillaya Sapon*	2 00
Soapwort, *Saponaria*	1 50
Solomon's Seal, *Conv. Polygonatum*	1 50
Southernwood, *Artem Abrotanum*	1 50
Speedwell, *Veronica Off*	2 00
Spearmint, *Mentha Viridis*	1 25
Spicewood Berries, Comp	3 00
Spikenard, *Aralia Racemosa*	1 50
Squaw Vine, *Mitchella Rep*	2 00
Squill, *Scilla Maritima*	1 50
“ Compound	3 00
Staphysagria	4 00
Star Grass, *Aletris*	2 00
Stillingia, *Stillingia Silvatica*	2 50
“ Compound	2 50
Stone Root, *Collinsonia*	1 75
Stramonium Leaves, *Stram Fol.*	1 75
“ Seed	1 75
St. John's Wort, *Hypericum*	1 55
Sumach, *Rhus Glabram*	1 25
Sumach Berries, *Rus Glabram*	1 25
Summer Savory, *Satureja Hort*	1 50
Sundew, *Drosera Rotundifolia*	4 50
Sunflower Seed	1 75
Sweet Fern, *Comptonia Asp*	1 00
Sweet Flag, *Acorus Calamus*	1 50
Sweet Gale, *Mysica Gale*	1 50
Tag Alder, *Alnus Rubra*	1 25

FIRST PREMIUM AWARDED IN 1874.

	Per Pint.
Tamarac Bark, *Larix Amer*	2 00
Tansy, *Tanacetum*	1 25
Thimble Weed	1 75
Thoroughwort, *Eupator Perfol*	1 25
Thyme, *Thymus Vulgaris*	1 25
Tobacco, *Nicotiana Tabac*	2 00
Tonka Bean, *Dipteris Odorata*	3 00
Tormentilla, *Potentilla Tormentilla*	2 00
Trailing Arbutus, *Epigæa Repens*	2 00
Turkey Corn, *Corydalis*	3 00
Turmeric, *Curcuma Longa*	1 25
Twin Leaf, *Jeffersonia Diph*	1 50
Unicorn Root, *Helonias*	3 00
Uva Ursi, *Arctostaphylos*	1 50
Valerian, *Valerian Offic*	2 00
Veratrum Viride	2 50
Vervain, *Verbena Offic*	" 1 25
Wahoo, *Euonymus*	" 2 25
Water Pepper, *Polygonum Punc*	" 1 25
Watermelon Seed, *Cucurbita Citrullus*	" 1 25

	Per Pint.
White Oak Bark, *Quercus Alba*	" 1 00
White Poplar Bark, *Populus Trem*	" 1 50
Whitewood Bark, *Liriodendron*	" 1 25
Wickup, *Epilobrium Pal*	" 2 50
Wild Ginger, *Asarum*	" 2 00
Wild Indigo, *Baptista Tinct*	" 1 50
Wild Turnip, *Arum Triphy*	" 1 25
Wild Yam, *Dioscorea Villosa*	" 1 50
Willow Bark, *Salix*	" 1 25
Wintergreen, *Gaultheri Proc*	" 1 50
Witch Hazel, *Hamamelis Virg*	" 1 50
Witch Hazel Leaves, *Hamamelis Virg*	" 1 60
Wormseed, *Chenopodium*	" 1 20
Wormwood, *Artemisia Absinth*	" 1 50
Yarrow, *Achillea Millefol*	" 1 25
Yellow Dock, *Comp*	" 1 50
Yellow Dock, *Rumex Crispus*	" 2 00
Yellow Jessamine, *Gelsemium*	" 2 60
Yellow Parilla, *Menispermum Canad*	" 2 00
Yerba Santa, *Eriodyction Glutin*	" 4 50

RESINOIDS.

I am largely engaged in manufacturing these articles, which are neatly put up in bottles containing one ounce, and guarantee to keep in any climate.

A Liberal Discount Made, According to Amount Purchased.

Podophyllin, from Mandrake	oz	50
Leptandrin, from Culver Root	"	85
Cimicifugin, from Black Cohosh	"	75
Macrotin, from Black Cohosh	"	75
Aconitin	"	3 00
Aletrin, from Aletris	"	2 50
Alnuin, from Tag Alder	"	1 00
Atropine	"	3 00
Ampelopsin, from American Ivy	"	1 25
Apocynin, from Dogsbane	"	2 00
Asclepedin, from Pleurisy Root	"	1 50
Baptisin, from Wild Indigo	"	1 25
Barosmin, from Buchu	"	3 00
Caulophyllin, from Blue Cohosh	"	80
Cerasin, from Cerasus	"	1 00
Chelonin, from Balmony	"	1 75
Chimaphyllin	"	1 75
Collinsonin, from Stone Root	"	2 00
Colocynthin, from Colocynth	"	3 00
Cornin, from Dogwood	"	1 00
Corydalin, from Turkey Pea	"	3 00
Cypripedin, from Ladies' Slipper	"	1 75
Digitalin, from Foxglove	"	1 50
Dioscorein, from Wild Yam	"	2 00
Eryngin, from Cornsnake Root	"	1 25
Euonymin, from Wahoo	"	1 75
Eupatorin, from Boneset	"	1 00
Eupurpurin, from Queen Mead	"	2 00
Frazerin, from Am Columbo	"	1 25
Gelsamin, from Yellow Jessamin	"	3 00
Geraniin, from Cranesbill	"	1 05
Gillenin, from American Ipecac	"	2 50
Gossypin, from Cotton Root	"	1 25
Hamamelin, from Witch Hazel	"	1 25
Helonin, from Unicorn Root	"	2 50

Hematoxylin	"	1 00
Humulin, from Hops	"	1 50
Hydrastine, from Golden Seal	"	2 50
Hydrastin, principles Com'l	"	2 50
Hydrastia, Mur *fr'm Cryst'd Hyd'stine*)	"	8 00
" Nitrate	"	3 50
" Sulph	"	4 00
Hyoscyamin, from Henbane	"	3 50
Irisin, from Blue Flag	"	1 00
Jalapin, from Jalap	"	4 00
Juglandin, from Butternut	"	1 25
Lobelin, from Lobelia	"	2 50
Leontodin, from Dandelion	"	1 00
Lupulin, from Hops	"	1 00
Lycopin, from Bugle Weed	"	1 75
Menispermin, from Yellow Parilla	"	1 50
Myricin, from Bayberry	"	1 00
Panduratin, from Con. Pandu	"	1 50
Phytolacein, from Gar. or Poke	"	1 50
Populin from Aspen Pop	"	1 00
Prunin, from Wild Cherry	"	1 00
Ptelein, from Water Ash	"	2 00
Rhusin, from Sumach	"	1 25
Rumicin, from Yellow Dock	"	1 25
Sanguinarina, from Blood Root	"	1 25
" Sulph	"	6 50
Scutellarin, from Skullcap	"	2 00
Senecionin, from Life Root	"	1 50
Smilacin	"	3 00
Stillingin, from Stillingia	"	2 25
Trillin, from Bethroot	"	1 00
Veratrin, from Am. Hellebore	"	2 50
Verbenin, from Blue Vervain	"	1 25
Viburnin, from High Cranberry	"	2 00
Xanthoxylin, from Prickly Ash	"	1 50

From New York Druggists' Price Current, April 19, 1873.—

"For some time past our attention has been called to the Pure Inodorous Glycerin of W. J. M. Gordon's, of Cincinnati, and having obtained a bottle of the same from parties who did not know our object, we have submitted Mr Gordon's Glycerin to several tests, and are happy to state that his Glycerin is, in every particular, what Mr. G. claims—a pure and inodorous article, which we heartily recommend to the trade."

From Chicago Medical Times:—

"As a manufacturer of Glycerin, Mr. Gordon is known throughout the civilized world. His pure Glycerin we regard equal to any made. He is now turning out very handsome Sugar-Coated Pills, as well as many other Pharmaceutical Preparations. An immense stock of Botanic goods is a comparatively recent feature in his trade."

EXTRACT FROM A LETTER.

DEAR SIR: NEWPORT, COCKE CO., TENN. October 16th 1875

I do truly think, as far as I have tried your Drugs they are the best I have ever used and I have obtained Drugs from all points of the U. S. in the 30 years I have been practicing medicine. Pardon me for saying this personally to you, but your Drugs operate so true and good, and never disappoint me, that I cannot help telling you of it. Please send articles ordered, to the above address.

Yours Truly,

J. F. FORMAN, M. D.

BAUSCH & LOMB OPTICAL CO.

MANUFACTURERS OF

MICROSCOPES, OBJECTIVES,

Etc., Etc., Etc.

FACTORY,
179 & 181 North St. Paul St.,
ROCHESTER, N. Y.

OFFICE,
37 Maiden Lane,
NEW YORK.

The Microscopes manufactured by this Company have now been before the public for several years, and during that time have given universal satisfaction. They are recommended by some of our leading microscopists, and are in use in many of our highest institutions of learning.

They are constructed with several improvements not to be found in the instruments of other makers, and the patents for which this company exclusively own. The principal one of these is the FINE ADJUSTMENT, which is very sensitive, has no lateral swing whatever, nor any lost motion, and, having no friction, is not liable to deterioration.

The above described Microscopes have recently received the Award of a SILVER MEDAL at the Universal Exposition of Paris, of the present year.

THE BAUSCH & LOMB OPTICAL COMPANY have also recently made several important improvements in the Object-Glasses manufactured by them, and they now invite the most rigid examination, and challenge direct comparison with similar products of other makers.

The facilities at their disposal, and their improved system of manufacture, enable them to have each part of every instrument made with the greatest care, accuracy and perfection, increasing thereby its general efficiency.

Special attention is further called to their NEW STYLE OF OBJECTIVE, with glycerine adjustment for cover-correction, having many and important advantages over the old mode of adjustment, and of which this Company also own the exclusive right of manufacture.

Descriptive Circulars and Illustrated Price Lists will be sent gratis on application.

Nov.78

To the Medical Profession.

LACTOPEPTINE

The most important remedial agent ever presented to the Profession for Indigestion, Dyspepsia, Vomiting in Pregnancy, Cholera Infantum, Constipation, and all diseases arising from imperfect nutrition, containing the five active agents of digestion, viz: Pepsin, Pancreatine, Diastase, or Veg. Ptyalin, Lactic and Hydrochloric Acids, in combination with Sugar of Milk.

FORMULA OF LACTOPEPTINE:

Sugar of Milk....40 oz	Pancreatine ....6 oz.	Lactic Acid...........5 fl. dr.
Pepsin.......... ... 8 oz.	Veg. Ptyalin or Diastase...4 dr	Hydrochloric Acid...5 fl. dr.

LACTOPEPTINE owes its great success solely to the Medical Profession, and is sold almost entirely by Physicians' Prescriptions. Its almost universal adoption by the profession is the strongest guarantee we can give that its therapeutic value has been most thoroughly established.

The undersigned having tested LACTOPEPTINE, recommend it to the profession:

ALFRED L. LOOMIS, M. D.,
Professor of Pathology and Practice of Medicine, University of the City of New York

LEWIS A. SAYRE, M. D.,
Professor of Orthopœdic Surgery and Clinical Surgery, Bellevue Hospital Medical College.

F. LE ROY SATTERLEE, M. D., PH. D.,
Professor of Chem. Mat. Med. and Therap. in the N. Y. College of Dent; Prof. of Chem. and Hygiene in the Am. Vet. College, etc, etc.

SAMUEL R. PERCY, M. D.,
Professor Materia Medica, New York Med. College.

A. VAN DEVEER, M. D., Albany, N. Y., June 8th, 1878 Prof. of the Prin. and Prac. of Surg., Albany Med. Col.; Surg. Albany and St Peter's Hospitals.	"I have given LACTOPEPTINE a good thorough trial, and have been greatly pleased with the excellent results that have followed its administration."
JOHN H. PACKARD, M. D., Philadelphia, Pa., May 30th, 1878. Pres't Pa. Co. Obstet. Society; Surg. Episcopal and Women's Hospitals;	"I have found great satisfaction in the use of LACTOPEPTINE, and have ordered it frequently in cases of Dyspepsia, especially where there is want of tone and defective secretion."
JAS. AITKEN MEIGS, M. D., Philadelphia, June 20th, 1878. Prof. of the Institutes of Med. and Med. Juris., Jeff. Medical College; Phy. to Penn. Hos.	"I have used LACTOPEPTINE with very good effect in a number of cases of Dyspepsia."
W. W. DAWSON, M. D., Cincinnati, O., June 21st, 1878. Prof. Prin. and Prac. Surg. Med. Col. of Ohio; Surg. to Good Samaritan Hospital.	"I have used LACTOPEPTINE with great advantage in cases of feeble digestion."
ALBERT F. A. KING, M. D., Washington, D. C., June 19th, 1878. Prof. of Obstetrics, University of Vermont.	"I have used LACTOPEPTINE both in hospital and private practice, and have found it to answer fully the purposes for which it is recommended. As an immediate aid to the digestive function, I know of no remedy which acts more directly."
D. W. YANDELL, M. D., Louisville, Ky; March 7th, 1878. Prof. of the Science and Art of Surg., and Clinical Surg., University of Louisville.	"I have made much use of LACTOPEPTINE, and take great pleasure in stating that it has rarely disappointed me. I shall, of course, continue to prescribe it."
ROBT. BATTEY, M. D., Rome, Ga., June 7th, 1878. Emeritus Prof of Obstetrics, Atlanta Med. College, and Ex-Pres. Med. Association of Ga.	"I have used LACTOPEPTINE in a case of Dyspepsia, with satisfaction. I think well of it."
CLAUDE H. MASTIN, M. D., LL. D., Mobile, Ala., June 8th, 1878.	"I consider LACTOPEPTINE the very best preparation of the kind which I have ever employed, and for patients with feeble digestion I know of nothing which is equal to it."
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